Second Five-Year Review Report

for

Peerless Plating Site

Muskegon Township
Muskegon County, Michigan

July 2007

PREPARED BY:

United States Environmental Protection Agency
Region 5
Chicago, Illinois

Approved by:

Richard C. Karl, Director
Superfund Division
U.S. EPA

Date:

7/12/07

Five-Year Review Report

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Attachments

List of Acronyms

ARAR	Applicable or relevant and appropriate requirement
CERCLA	Comprehensive Environmental Response Compensation Liability Act
CIC	Community Involvement Coordinator
DCE	Dichloroethane
EPA	Environmental Protection Agency
ESD	Explanation of Significant Difference
HWD	Hardware Distributors Inc.
IC	Institutional Controls
LTRA	Long Term Remedial Action
MCL	Maximum Contaminant Level
MDNR	Michigan Department of Natural Resources
MDEQ	Michigan Department of Environmental Quality
mg/kg	Milligram Per Kilogram
MWRC	Michigan Water Resource Commission
NCP	National Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
PCE	Perchloroethylene
POTW	Muskegon Waste Water Treatment Plant
ppb	Parts Per Billion
ppm	Parts Per Million
RA	Remedial Action
RD/RA	Remedial Design/Remedial Action
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RPM	Remedial Project Manager
SRD	Substantive Requirements Document
SVE	Soil Vapor Extraction
TCE	Trichloroethylene
UST	Underground Storage Tank
U.S. EPA	United States Environmental Protection Agency
VOC	Volatile Organic Chemical

Executive Summary

The remedy for the Peerless Plating Site in Muskegon, Michigan included four major components: 1) Demolition and disposal of the Peerless Plating building; 2) Air stripping and treatment of the volatile organic compounds in the groundwater followed by precipitation of inorganic compounds; 3) In-situ Vapor extraction of the organic compounds and stabilization of the inorganic compounds in the soil; 4) Institutional Controls. The trigger for the first Five Year Review was the actual start of construction in August 1997. The trigger for the second Five Year Review was the signature date of the last Five Year Review.

The assessment of this Five Year Review found that the remedy was constructed in accordance with the requirements of the Record of Decision (ROD). Two Explanations of Significant Difference (ESD) were issued, one in 1997 and one in 2001, to change soil cleanup standards and address treatment approaches for the soil. During the 1999 construction of the groundwater treatment system, previously unidentified soil contamination was discovered and found to be widespread in the subsurface both vertically and horizontally, over a large portion of the Site. It was also discovered that contaminated soils may also be present under an addition to the Hardware Distributor building directly adjacent to the Site. Because of the difficulties and expense of excavating soil below the water table and underneath a building addition, contaminated soils that contained concentrations greater than the cleanup levels specified in the 1997 ESD were only excavated to the water table and/or left under the building addition. Deed restrictions are required because soil and groundwater contaminant concentrations remain on Site and will exceed the cleanup criteria. The Peerless property will be limited to industrial/commercial use. Groundwater consumption or construction activities that could expose soils left in place will not be allowed. In March 2006, a third ESD was signed. This ESD changed the need for the use of some or all of the treatment requirements and also changed the groundwater treatment discharge point from the Little Black Creek to the Muskegon Waste Water Treatment Plant (POTW).

The remedy at the Peerless Plating Site currently protects human health and the environment in the short term because there are no current exposure pathways and the remedy appears to be functioning as designed and the groundwater cleanup goals are expected to be met. The removal of onsite contaminated soils has achieved the remedial objective to minimize the migration of contaminants to the groundwater and prevent direct contact with and ingestion of contaminants in the soil. Long-term protectiveness will not fully be achieved until effective institutional controls have been implemented and maintained.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site name *(from WasteLAN)*: Peerless Plating		
EPA ID *(from WasteLAN)*: *MID006031348*		
Region: 5	**State:** MI	**City/County:** Muskegon Township/Muskegon County

SITE STATUS	
NPL status: X Final ☐ Deleted ☐ Other (specify)	
Remediation status (choose all that apply): Under Construction X Operating Complete	
Multiple OUs?* ☐ YES **X** NO	**Construction completion date:** 4/2001
Has site been put into reuse? ☐ YES X NO	

REVIEW STATUS	
Lead agency: X EPA ☐ State ☐ Tribe ☐ Other Federal Agency	
Author name: Linda Martin	
Author title: Remedial Project Manager	**Author affiliation:** U.S. EPA
Review period:** 07/2006 to 7/2007	
Date(s) of site inspection: 10/2/2006	
Type of review: **X** Post-SARA ☐ Pre-SARA ☐ NPL-Removal only ☐ Non-NPL Remedial Action Site ☐ NPL State/Tribe-lead ☐ Regional Discretion	
Review number: 1 (first) X 2 (second) ☐ 3 (third) ☐ Other (specify)	
Triggering action: Actual RA Onsite Construction ____ Actual RA Start 04/1993 ☐ Construction Completion X Previous Five-Year Review Report ☐ Other (specify)	
Triggering action date *(from WasteLAN)*: 09/25/2002	
Due date *(five years after triggering action date)*: 09/25/2007	

* ["OU" refers to operable unit.]
** [Review period should correspond to the actual start and end dates of the Five-Year Review in WasteLAN.]

Five-Year Review Summary Form cont'd.

Issues:

1) Evidence of incomplete groundwater capture.

1a) PW-3 is shifting and needs to be replaced. PW-3 will be relocated to help optimize the pump and treatment system.

2) Optimization of the groundwater treatment system

3) Institutional Controls need to be implemented – Effective deed restrictions need to be added to the Site as well as the adjacent Hardware Distributor property to limit potential exposure to contaminants that remain in soils on Site and under an addition that was built on Hardware Distributor building. ICs must be considered in the areas where groundwater contamination has come to be located in order to protect human health and the environment.

3b) ICs must be monitored to assure long-term stewardship.

Recommendations and Follow-up Actions:

1). Evidence of incomplete groundwater capture. Move EW-3 and evaluate capture.

2) Optimization of the groundwater treatment system. Continue to eliminate pre-treatment of the groundwater discharge.

3) EPA will prepare an IC Plan for title work, mapping of areas subject to restrictions, implementation of deed restrictions, and updating the O&M plan to monitor ICs in the long-term.

Protectiveness Statement(s):

The remedy at the Peerless Plating Site currently protects human health and the environment in the short term because there are no current exposure pathways and the remedy appears to be functioning as designed and the groundwater cleanup goals are expected to be met. The removal of onsite contaminated soils has achieved the remedial objective to minimize the migration of contaminants to the groundwater and prevent direct contact with and ingestion of contaminants in the soil. Long-term protectiveness will not fully be achieved until effective institutional controls have been implemented and maintained.

Other Comments:

None

Five-Year Review Report

I. Introduction

The purpose of Five Year Reviews is to determine whether the remedy at a Site is protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in Five-Year Review reports. In addition, Five-Year Review reports identify issues found during the review, if any, and recommendations to address them.

The Agency is preparing this Five Year Review pursuant to CERCLA §121 and the National Contingency Plan (NCP). CERCLA §121 states:

> *If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the Site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such Site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.*

The agency interpreted this requirement further in the National Contingency Plan (NCP); 40 CFR §300.430(f) (4) (ii) states:

> *If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the Site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.*

The United States Environmental Protection Agency (U.S. EPA) Region 5 has conducted a Five Year Review of the remedial actions implemented at the Peerless Plating Site, located in Muskegon County, Michigan. This review was conducted by the Remedial Project Manager (RPM) for the entire Site from July 2006 to July 2007. This report documents the results of the review.

This is the second Five Year Review for the Peerless Plating Site. The triggering action for this statutory review is the signature date of the previous Five Year Review, September 25, 2002. This review is required because certain response actions are ongoing and hazardous substances, pollutants, or contaminants are or will be left on Site above levels that allow for unlimited use and unrestricted exposure.

II. Site Chronology

Table 1: Chronology of Site Events	
Event	**Date**
Initial discovery of problem or contamination	**1972**
State of Michigan Action	**1972 - 1983**
NPL listing	**1990**
U.S. EPA Removal actions (removal of liquids, lagoon, soil, demolition and seal sewers)	**09/1983**
U.S. EPA Removal Action (remove additional liquids and sludge in underground storage tanks)	**1/15/1991**
Fund-lead Remedial Investigation/Feasibility Study complete	**06/1992**
ROD signature	**09/21/1992**
Actual Fund-Lead RA start	**4/1993**
Remedial Design complete	**09/30/1996**
On-Site Construction Start (soil excavation)	**08/01/1997**
Explanation of Significant Differences #1(to change soil cleanup levels)	**08/7/1997**
Explanation of Significant Differences #2 (Off-Site treatment of soils and Institutional Controls)	**04/05/2001**
Final inspection of pump and treat system	**04/2002**
Construction completion date	**04/04/2001**
First Five Year Review	**09/25/2002**
Explanation of Significant Differences #3(to change the discharge point and adjustments to the treatment requirements)	**03/15/2006**
Remediation System Evaluation	**07/2006**
Site Inspection	**10/2/2006**

III. Background

Physical Characteristics

The Peerless Plating Site is an abandoned electroplating facility located at 2554 Getty Avenue, Muskegon Township Muskegon, Michigan. The property covers approximately 1 acre in the southwest 1/4 of Section 33, T.10 N., and R. 16 W Muskegon Township. (See Attachment 1) The vicinity of the Site is urban light industrial and residential. Lake Michigan supplies drinking water for residences and businesses within a three mile radius of the Site. The Site is located adjacent to Little Black Creek.

Land and Resource Use

Electroplating operations were conducted at the Peerless Plating Site from 1937 to 1983. The current land use of the surrounding area is light urban industrial and residential. In establishing cleanup requirements for the Site, U.S. EPA considered the possibility of industrial redevelopment for the Site. The Site is fenced and contaminated soils were removed approximately to the depth of the water table and back filled with clean fill.

The groundwater aquifer underlying the Site occurs between 5 and 13 feet within lacustrine sands. Residents and businesses in the area receive their drinking water from Lake Michigan.

History of Contamination

Electroplating operations and processes conducted at Peerless Plating included copper, nickel, chromium, cadmium and zinc plating. Other associated activities such as burnishing, polishing, pickling, oiling, passivating, stress relieving, and dichromate dipping also occurred over the years of operation. Throughout the operations of the Site, waste was discharged to a seepage lagoon at the rear of the facility. While soil removal operations were conducted it was also discovered that a process pipe was not connected to anything and was discharging directly to groundwater.

Contaminants found in the soils included arsenic, antimony, beryllium, cadmium chromium, nickel, and cyanide. Contaminants in the groundwater included the same inorganics as well as acetone, benzene, 1,2, Dichloroethane, Trichloroethylene.

Initial Response

In 1972, a Stipulation was signed by the Michigan Water Resources Commission (MWRC), requiring Peerless Plating to monitor its waste discharge daily and to establish a schedule for installation of a treatment system to meet specific effluent guidelines. In 1975, the owner was issued a Notice of Noncompliance and Order to Comply. These indicated violations of all aspects of the 1972 Stipulation.

In 1976, the Stipulation was superseded when the MWRC issued a State permit to discharge, requiring Peerless Plating to meet reduced effluent limitations and to construct appropriate treatment facilities. Peerless Plating violated this permit by failing to meet effluent guidelines, failing to construct appropriate treatment facilities, and failing to maintain a daily sampling and analysis program.

A suit was filed by the Michigan Department of Natural Resources (MDNR) and the MWRC, enjoining Peerless from further discharge and requiring compliance with the MWRC permit.

In 1976, MDNR reported high cyanide concentrations in Little Black Creek sediments adjacent to the seepage lagoons. A Water Quality and Biological Survey of Little Black Creek was conducted in 1977 by the MDNR water quality division. Extremely high concentrations of heavy metals in stream sediments and surface water were attributed to seepage from the waste disposal lagoons on the Peerless property.

In 1978, a hydro geologic study was conducted by MDNR to define the extent of groundwater and surface water contamination. This study resulted in the installation of 7 monitoring wells. Cadmium and cyanide were detected in groundwater samples taken from the wells. In 1980, the seepage lagoon sludges were removed and disposed of and the excavated lagoon area was backfilled.

In 1982, the MDNR Water Quality Division conducted a second study of sediment, surface water, and biota in Little Black Creek in the vicinity of Peerless Plating. The resampling was conducted to determine if the removal of contaminated sediments was necessary. Cadmium concentrations in both water and sediments remained high, although substantial reductions had occurred since 1977. However, cadmium in sediments near the Site was not markedly different from concentrations upstream or downstream. Leaching of plating waste contaminants from the seepage lagoons was concluded to be greatly reduced. Improvement in stream quality was indicated by the increased number of general biota categories. Sediment removal from Little Black Creek was not recommended because upstream sources and urban runoff continued as significant heavy metal contributors, and sediment removal would eliminate most available animal habitat.

In 1983, the MDNR conducted an investigation into the operating practices at the Site and sampled materials in and around the plant. The MDNR found that treatment facilities still had not been upgraded and discharge limitations were still being exceeded for chromium, cyanide, cadmium, and zinc. The MDNR determined that manholes inside the plant did not connect to the sanitary sewer or plant treatment systems, so wastes were discharged directly to the ground under the building.

In 1983, The MDNR and the Michigan Attorney General again filed a suit against Peerless for failure to meet county ordinance discharge limitations.

In June 1983, Peerless Plating closed as a result of regulatory actions, labor problems, and financial difficulties. The owner declared bankruptcy. The plant was abandoned and the plating solutions, raw materials and drummed wastes were left throughout the building.

State Agencies contacted the U.S. EPA Region V Spill Response section requesting that the Site be considered for emergency action under CERCLA. In the fall of 1983, a Site Assessment was conducted and the U.S. EPA determined that the Peerless Plating facility was an immediate threat to human health and the environment.

From September 6 until October 7, 1983, the U.S. EPA carried out an Emergency Response Action at the Site. The objectives of the emergency response action included the removal and disposal of hazardous waste and decontamination of the facility. This action resulted in the removal of 37,000 gallons of hazardous liquids including sulfuric acid, nitric acid, hydrochloric acid, chromic acid, cyanide plating solution, chromium plating solutions and trichloroethylene. Lagoons were drained, soil was removed from the lagoons area, soils and sludges were removed from the building interior vats, lines, tanks, sumps, floorboards and walls were decontaminated. Sewer lines were sealed, virgin and proprietary chemicals were removed and on Site neutralization of cyanides and nitric acid occurred.

In 1984, the U.S. EPA conducted a Preliminary Assessment (PA) and reported that groundwater was contaminated with trichloroethylene (TCE), perchloroethylene (PCE) and Chloroform, and that surface water and sediment in Little Black Creek were contaminated with heavy metals. The building structure was reported to be unsound and Site access restriction was inadequate. Recommendations included performing a Site inspection to confirm whether all on Site liquids and containers had been removed during the 1983 emergency response action and to assess groundwater, soil and surface water contamination.

A Site Inspection was conducted in 1985 to determine the extent of contamination. A hydrogeolgic study was also conducted in 1985 to further delineate the extent of groundwater contamination. Results indicated contamination of groundwater by heavy metals and volatile organics associated with activities at a plating operation.

In June 1990, the Peerless Plating Site was finalized on the National Priority List. From 1990 through 1992, a Remedial Investigation/Feasibility Study (RI/FS) was conducted to determine the nature and extent of contamination at the Site. Based on these findings, a ROD was issued for the Site in September 1992.

Basis for Taking Action

Contaminants
Hazardous substances that have been released at the Site in each media include:

Soil	Groundwater
arsenic	arsenic
antimony	cadmium
cadmium	chromium
chromium	copper
copper	nickel
lead	cyanide
nickel	acetone
cyanide	benzene
benzene	trichloroethane
1,1 dichloroethane	vinyl chloride
ethylbenzene	
perchloroethylene	
toluene	
vinyl chloride	
xylene	

Exposure to soil and groundwater are associated with significant human health risks due to exceedances of U.S. EPA's risk management criteria for the reasonable maximum exposure scenarios. The carcinogenic risks were highest for exposure to contaminated soil and groundwater exceeded the acceptable risk range of 1 X10-4 to 1 X 10-6.

IV. Remedial Actions

Remedy Selection

On September 21, 1992, U.S. EPA issued a ROD that called for the following actions:

- Demolition and disposal of the Peerless Plating building in order to facilitate additional soil sampling underneath the building and around the perimeter during the remedial design phase.

- Air stripping and treatment of the volatile organic compounds in the groundwater, followed by precipitation of inorganic compounds. The treated groundwater was discharged into Little Black Creek.

- In-situ Vapor Extraction for the organic compounds and stabilization of inorganic compounds in the soil. The treated soil will be disposed of off Site.

- The selected remedy uses a permanent treatment system to eliminate the principal threat posed to human health and the environment by removing contaminated soils and the source of further groundwater contamination in the subsurface soil.

The purpose of the response action is to control risks posed by ingestion of and dermal contact with contaminated groundwater and soils and to treat the principal threat (the contaminated soils).

The ROD established groundwater cleanup standards based on Safe Drinking Water Act Maximum Contaminant Levels (MCLs), risk-based levels, and State of Michigan criteria for protection of groundwater quality. Two ESDs were issued following the approval of the ROD that changed the soil cleanup standards at the Site and required the use of institutional controls because some contaminated soils would be left on Site as well as on adjacent property under a building addition.

The first ESD issued in 1997 was based on the collection of Site specific data that had not been collected previously. The cleanup standards in the ROD were based on background concentrations from a single sample collected at another Superfund Site. Also, the State of Michigan promulgated new cleanup standards for land use-based remediation. Using this information, new soil cleanup standards were generated.

A second ESD was issued in 2001. This ESD was issued to allow for contaminated soils to remain on Site above the cleanup levels because the ROD indicated that all contaminated soils would be excavated and stabilized on Site to allow for unrestricted Site use. This ESD also allowed for excavation of contaminated soils within 2 feet of Little Black Creek. This would maintain the integrity of the stream bank and reduce any impact to the Creek. The ESD required that deed restrictions be placed on the property because contaminated soils were being left on Site as well as on adjacent property.

In March 2006, a third ESD was issued for the Peerless Plating Site. The U.S. EPA issued this ESD in order to make a change to reduce some or all of the treatment requirements outlined in the 1992 ROD and also to change the discharge point for the groundwater pump and treat system from Little Black Creek to the Muskegon Waste Water Treatment Plant (POTW). This ESD also allowed for reduction or elimination of pretreatment products. To date, the plant operator has been able to eliminate all pretreatment chemicals needed.

In 2006, a local watershed group raised a concern about cadmium in sediments in Little Black Creek. Because of this concern, in August 2006, MDEQ personnel conducted sediment sampling along a portion of the Little Black Creek to determine if cadmium levels had changed since the sampling conducted as part of the RI/FS for this site. During the RI/FS, seven surface water and sediment samples were collected. The RI/FS samples also showed elevated levels of heavy metals including cadmium. At the time of the ROD, it was determined that there were other contaminant sources upstream from the Site which was contributing to contamination

found in Little Black Creek. At the time of the ROD, it was also determined that any remediation of Little Black Creek would be more detrimental to the ecological habitat than would benefit the stream. MDEQ has submitted the results of the August 2006 sampling event to the U.S. EPA and U.S. EPA is currently reviewing the results. It is important to note that at this time, U.S. EPA has determined that the decision made at the time of the ROD not to address contaminated sediments in Little Black Creek is still protective and other contaminate source along the creek still exist.

Remedy Implementation

All work preformed at this Superfund Site was conducted by U.S. EPA under a Superfund financed cleanup. A ROD was signed for the Site on September 21, 1992. The Remedial Action objectives were developed as a result of the data collected during the RI and post ROD design phase. The purpose of the response action is to control risks posed by ingestion of and dermal contact with contaminated groundwater and soils and to treat the principal threat (the contaminated soils).

Activities at the Site included multiple removal activities to eliminate the source of contamination from the Site and to contain and remediate the contaminated groundwater. These included:

Soil remediation construction activities. There were three phases of soil remediation construction activities. Phase 1 occurred from August 1977 until January 1999 and included SVE treatment; soil excavation, treatment, and disposal; and removal of an underground storage tank (UST) on Site. Phase 2 took place from December 1999 through October 2000 and included additional soil excavation, treatment and disposal off Site and to the east of the Site. Phase 3 lasted from October 2000 to February 2001 and included off-Site soil excavation, treatment and disposal of soils on the Hardware Distributors and Asphalt Paving properties. A total of 16, 404 tons of soil were treated and disposed off-Site during this action.

During soil excavation activities it was determined that soil exceeding the cleanup standards 2 feet below the groundwater table would not be excavated and would be left in place. Phase 1 excavation activities required that some areas on Site be left above cleanup standards. Confirmatory sampling during this phase showed that levels of cadmium and TCE were detected at concentrations greater than their cleanup standards.

All confirmatory samples collected during Phase 2 and Phase 3 were below cleanup standards. However, soils were only removed up to the building on the Hardware Distributor property, and it is assumed that an addition to this building is built over contaminated soils.

Groundwater remediation construction activities. Groundwater remediation construction activities were conducted from November 1999 through April 2002. This involved constructing a groundwater extraction and treatment system and conducting performance testing. A Pre-final inspection was conducted on February 10, 2001, and determined that the contractors did construct the remedy in accordance with the remedial design plans and specifications.

The groundwater pumping (extraction) system includes six extraction wells. These wells are six inches in diameter and have approximately five feet of screen, extending from approximately 55 to 60 feet. Following treatment groundwater was discharged into Little Black Creek.

The Site achieved construction completion status when the Preliminary Closeout Report was signed in April 2001.

U.S. EPA and the State have determined that all RA construction activities were performed according to specifications. It is expected that cleanup levels for the groundwater contaminants will be reached within approximately ten years. After groundwater cleanup levels have been met, U.S. EPA will issue a Final Close Out Report.

Three ESDs were signed on August 7, 1997, April 5, 2001 and March 15, 2006. The 1997 ESD established Site specific cleanup goals for the soil on-Site. The 2001 ESD addressed off Site stabilization of soils instead of on-site stabilization of soils as indicated in the ROD and included the need for the addition of institutional controls (Deed restrictions) because soils and groundwater concentrations remain on site and exceed cleanup criteria. The March 2006 ESD made a change to reduce some or all of the treatment requirements outlined in the 1992 ROD and also changed the discharge point for the groundwater pump and treat system from Little Black Creek to the Muskegon Waste Water Treatment Plant (POTW).

Cleanup goals for the Site are:

TABLE 2

Contaminant of Concern	Groundwater (ug/l)	Soil (mg/kg)
Arsenic	0.2	10.7
Cadmium	4.0	210
Aluminum	50	No criteria
Antimony	30	150
Barium	2,000	30,000
Chromium III	7,000	69,000
Chromium VI	2.0	180
Lead	5.0	400
Mercury	2.0	130
Nickel	57	960
Silver	0.1	350

Contaminant of Concern	Groundwater (ug/l)	Soil (mg/kg)
Thallium	0.5	28
Cyanide	4.0	9,300
Benzene	1.0	78
1,1 Dichloroethane	700	13,000
Chloroform	6.0	270
Trichloroethylene (TCE)	3.0	160
Vinyl Chloride	0.2	1.2
1,2 Dichloroethane	0.4	25
Ethylbenzene	30	6,700
Toluene	100	11,000
1,1,1 -Trichloroethane	117	3,100
Xylenes	59	130,000

Institutional Controls

Decision Document:

The ROD identified cleanup levels for soil and groundwater at the Site. The assumptions used in selecting the soil cleanup standards in the remedy were for commercial/industrial uses. The remedy assumed also that the groundwater would not be used until cleanup levels were achieved. The 1997 ESD required that Institutional Controls (ICs) in the form of deed restrictions be placed on the property because contaminated soils were being left on Site as well as on adjacent property. Deed restrictions, are a form of proprietary IC that runs with the land. Additionally, based upon best professional judgment, additional ICs may be required in the areas where groundwater contamination has come to be located in order to protect human health and the environment.

ICs are non-engineered instruments, such as administrative and/or legal controls, that help minimize the potential for exposure to contamination and protect the integrity of the remedy. Compliance with ICs is required to assure long-term protectiveness for any areas which do not allow for unlimited use or unrestricted exposure (UU/UE).

The table below summarizes institutional controls for these restricted areas.

Institutional Controls Summary Table

Media, Engineered Controls, & Areas that Do Not Support UU/UE Based on Current Conditions.	IC Objective	Title of Institutional Control Instrument Implemented (note if planned)
Peerless Site Property Soil treated to industrial cleanup standards/ Groundwater exceeds cleanup standards	Prohibit residential use; Prohibit groundwater use until cleanup standards are achieved Prohibit excavation of soils	Deed Restrictions (planned)
Groundwater Treatment System on Peerless Property Site	No interference with Engineered Control	Deed restrictions (planned)
Hardware Distributors Property Soil treated to industrial cleanup standards/ Groundwater exceeds cleanup standards	Prohibit residential use; Prohibit groundwater use until cleanup standards are achieved No interference with Engineered Control Prohibit exaction of soils	Deed Restrictions (planned)
Groundwater areas where groundwater contamination has come to be located	Prohibit residential use; Prohibit groundwater use until cleanup standards are achieved No interference with Engineered Control	Restrictive Covenant or Ordinance (planned)

Maps which depict the current conditions of the site and areas which do not allow for UU/UE will be developed as part of the IC plan.

Based upon the site inspection and interviews, no inconsistent uses have been identified on these above-mentioned properties. However, to assure long-term protectiveness, effective deed restrictions must be implemented and maintained. Therefore, U.S. EPA will develop an IC plan for implementing the restrictions and monitoring plan. This plan will include title work to identify owners and inconsistent encumbrances which might need to be subordinated, developing accurate maps, implementation of deed restrictions. U.S. EPA will negotiate with the MDEQ and the Hardware Distributor property owners to implement all restrictions on their properties. The IC plan will be developed 6 months from the approval of this Five Year Review.

System Operation/Operation and Maintenance

Operation and Maintenance (O&M) activities are being conducted for the groundwater pump and treat system and long-term groundwater monitoring for the Peerless Site. O&M activities began in June 2002 following system acceptance from the construction contractor. The primary activities associated with O&M at the Peerless Plating Site include:

- Operation of the treatment plant 24 hours per day, seven days per week while treating water from all active extraction wells
- Inspection and maintenance of all groundwater extraction and monitoring wells
- Inspection, maintenance, and operation of the groundwater treatment system
- Monthly monitoring of groundwater treatment system effluent to ensure compliance with the Muskegon County Wastewater Management Industrial User Wastewater Discharge Permit
- Semiannual monitoring of groundwater
- Monthly reporting of treatment system monitoring to the county for review

The groundwater treatment system has been operating since early June 2002. Performance testing of the groundwater treatment system was conducted from June through August 2001. Due to the subcontractor's difficulty in consistently achieving the discharge limit for cadmium, a request was submitted to MDEQ to review and modify the SRD effluent limitations to include the most recent discharge permitting guidelines. In January 2002, MDEQ issued a revised SRD that increased the cadmium discharge limit from a monthly average of 0.72 microgram per liter (ug/L) to 12 ug/L and increased discharge limits for other metals as well. Additional performance testing was conducted to demonstrate the groundwater treatment system's ability to meet the revised cadmium permit limit. Performance testing was completed in March 2002 and the final inspection was conducted in April 2002.

Beginning in October 2006, following the completion of the groundwater treatment discharge to the POTW, the plant operator began to reduce the amount of pretreatment chemicals being used at the treatment plant. The U.S. EPA is currently looking into modification to the plant that will help eliminate all pretreatment of the groundwater prior to discharge and will help reduce overall operations costs.

The estimated annual O&M costs were generated from the operation of the system following the elimination of the pretreatment step in the operation process. This information is provided in Attachment 5.

Once the ICs are implemented, the O&M Plan needs to be updated to assure proper monitoring and reporting are occurring to assure long-term protectiveness.

V. Progress Since the Last Review

The following issues and recommendations were identified in the first Five Year Review:

An erosion problem was detected near the soil removal area at the HD property. This problem was addressed during work to repair one of the pumping wells. This problem no longer exists.

Need for continued operation, maintenance, and optimization of the groundwater pump and treatment system. This is continually being addressed by the contractor operating the treatment system. The most recent improvement to the groundwater treatment plant was the elimination of pretreatment for the groundwater being discharged to the POTW.

Write a letter to the State and Hardware Distributors property owners requesting implementation of IC. This has not been addressed but will be addressed as part of the IC plan being written by U.S. EPA for this Site.

The following are issues to be addressed based on findings in the second 5 Year Review Report:

Evidence of incomplete groundwater capture: Based on a review conducted by the Army Corp of Engineers in the RSE report, it appears that the extent of the full groundwater plume is undefined and the groundwater extraction system is likely not currently containing the plume as defined by the cleanup goals. The plume extent north of PZ19 is the primary uncertainty. Though the system is largely containing the on-site portion of the plume, there is a potential gap in the containment between Extraction Well (EW)-2 and EW-3. There are no users of groundwater in the vicinity of the Site, but groundwater likely discharges to Little Black Creek. To help resolve this issue, EW-3 is being moved and pumping rates will be adjusted once a groundwater modeling exercise is complete. The installation of a new EW-3 and groundwater modeling is expected to be complete by the end of September 2007.

The RSE Executive Summary suggests that the plume boundaries are not well defined and indicates that additional monitoring locations may be necessary in the area of PZ19. They also suggest that additional definition of the plume in the area of EW-6. The RSE report suggested that an upgradient background monitoring point be added to assure no off site sources impact the Site. In 2006, MDEQ installed additional monitoring wells to help address some of theses issues. These wells are just now being included in future groundwater sampling events. Continued monitoring of the area will take place and a review of information will be conducted to determine if full capture is taking place.

Deed Restrictions: Letters will be sent to the MDEQ and Hardware Distributors to implement deed restrictions required by the 2001 ESD for this Site. The Site property is currently owned by the Michigan Land Bank Fast Track Authority (the State of Michigan). The State of Michigan obtained the property through a tax reversion.

Pump and Treat O&M: Over the course of the last five years the groundwater treatment discharge point was changed from the Little Black Creek to the local POTW. As a result of this change U.S. EPA has been able to reduce and/or eliminate the need for pre-treatment of the groundwater prior to discharge to the POTW. U.S. EPA has not realized any cost saving in the operation of the system by switching to the local POTW because the yearly sewer discharge cost is approximately $288,000 per year. As U.S. EPA completes a reduction in pretreatment additives and determines the need for the operation of a large treatment building and a reduction in operator hours, U.S. EPA should see some cost savings. The implementation of reduction in treatment and reductions in building operation has started and is expected to be completed over the next 12 months.

VI. Five-Year Review Process

Administrative Components

MDEQ was notified of the initiation of the Five Year Review in October 2006. The Five Year Review team was led by Linda Martin of U.S. EPA and included Sunny Krajcovic with MDEQ.

From October 2006 to May 2007, the RPM established the review schedule. Its components included:
* Community Notification
* Document Review
* Data Review
* Site Inspections
* Five-Year Review Report Development and Review.

Community Involvement

Activities to involve the community in the Five Year Review were initiated with a meeting in early October 2006 between the RPM and the Community Involvement Coordinator (CIC) for the Peerless Plating Superfund Site. A notice was sent to the Muskegon Chronicle newspaper that a Five-Year Review was to be conducted. The notice was published on February 28, 2007 and invited the public to provide input to U.S. EPA. A copy of this ad can be found in Attachment 6. The results of the review and the report were made available at the Norton Shores Branch Library in the Peerless Plating Superfund Site information repository.

Since the notice and press release were issued, no member of the community voiced any interest or opinion concerning the Five Year Review process.

Document Review

This Five Year Review consisted of a review of relevant documents (See Attachment 2). Applicable soil and groundwater cleanup standards, as listed in the ROD and ESDs were also reviewed (See Table 2).

Data Review

Groundwater extraction and treatment operations at the Peerless Plating Site began in July 2002. The groundwater treatment system has been continually operating for approximately five years. In October 2006, U.S. EPA, MDEQ and the O&M contractor met to discuss revisions to the groundwater sampling plan based on current Site data. The group went over the monitoring wells installed for the Peerless Plating Site and determined that not all of the wells needed to be sampled on a biannual basis. Wells were grouped into Biannual sampling, annual sampling, keep but don't sample and proper abandonment of some wells. The table below summarizes the current agreement:

Monitoring wells	Decision	Comments
U.S. EPA Wells		
WTO2A	Biannual sampling	
PZ02B		Well will be left in place
M14013	Annual sampling	
M14014	Annual sampling	
M14015A	Annual sampling	
PZ 18		Properly Abandoned
PZ 19		Properly Abandoned
PZ 20		Properly Abandoned
PZ 11A	Biannual sampling	
PZ 11 B	Biannual sampling	
PZ 11 C	Annual sampling	
PZ 12 A	Biannual sampling *	Over-drill and reinstall
PZ 12 B	Biannual sampling *	Over-drill and reinstall
PZ 12 C	Biannual sampling *	Over-drill and reinstall
PZ 21	Biannual	
PZ 13 A	Biannual	
PZ 13 B	Biannual	
PZ 13 C	Annual	
PZ 05 C		Properly Abandoned
PZ 06 A	Biannual	
PZ 06 B	Biannual	
PZ 06 C	Biannual	
PZ 14 A	Biannual	
PZ 14 B	Biannual	
PZ 14 C	Biannual	
PZ 15 A		Leave in place
PZ 15 B		Leave in place
PZ 15 C		Leave in place

Monitoring wells	Decision	Comments
PZ 16		Properly Abandon
PZ 17		Properly Abandon
MDEQ wells		
PZ 8	Annual	
PZ 9A	Biannual	
PZ 9B		DEQ will sample, based on the results a determination will be made about future sampling
PZ 1 A		Water level only
PZ 1 B		Water level only
PZ 2 A	Biannual	
PZ 2 B	Biannual	
PZ 3 A		Water level only
PZ 3 B		Water level only
PZ 3 C		Water level only
PZ 6 A, B, C	Biannual	MDEQ needs to develop the well and add a riser
PZ 10 A		U.S. EPA will sample one time in the spring 2007
PZ 10 B		U.S. EPA will sample one time in the spring 2007
PZ 7		MDEQ needs to develop the well. Water level only
PZ 21 B		U.S. EPA will sample in the spring of 2007. A sampling determination will be made after the data is reviewed
PZ 22 C		U.S. EPA will sample in the Spring of 2007. A sampling determination will be made after the data is reviewed.

Attachment 4 includes sampling results comparing groundwater analytical results from November 2002 through September 2006. Attachment 4 also includes a well location map. Based on the comparison of the analytical results, the concentrations of analytes in some of the monitoring wells increased between the sampling events and some decreased. Aluminum arsenic, cadmium, lead and nickel concentrations appear to have decreased in most monitoring wells. No overall trend or pattern can be identified throughout the monitoring rounds.

Based on comparisons of contaminants in the extraction wells, aluminum and trichloroethylene

concentrations have generally decreased in all 6 extraction wells since the system was started up. Cadmium concentrations have decreased in four of the extraction wells but have increased in two of the extraction wells. Cyanide, hexavalent chromium and nickel concentrations have remained approximately the same and zinc concentrations have varied.

Extraction wells appear to be creating a significant groundwater gradient, however and cadmium and hexavalent chromium concentrations detected near EW- 6 suggest that either Little Black Creek may be contributing to detections of these metals or an unidentified source of cadmium or hexavalent chromium exists near well EW-6.

Groundwater monitoring will continue on a semi-annual basis during operation and maintenance of the Site.

Site Inspection

A Site Inspection was conducted at the Site on October 2, 2006. The Site inspection was conducted by Linda Martin of U.S. EPA. Also present were Sunny Krajovic of MDEQ, Lee Christenson, of Tetra Tech Inc., and Blair Selover, Tetra Tech CRI, treatment system operator. At the time of the inspection the treatment system was operational and running. All the monitoring wells were running and pretreatment reduction had started. There were no issues observed during this event.

VII. Technical Assessment

Question A: Is the remedy functioning as intended by the decision documents?

Yes, the remedy is functioning as intended by the decision document. The review of documents, ARARs, risk assumptions and the results of the Site inspection indicates that the remedy is functioning as intended by the ROD, as modified by three ESDs. The remedy is being modified in that the need for pretreatment of the groundwater prior to discharge to the POTW is no longer needed.

There is evidence that there is incomplete capture of the groundwater plume. Modification to the pumping well system as well as additional groundwater modeling to adjust pumping rates is being evaluated and will address this concern.

Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of remedy selection still valid?

Yes, the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy selection are still valid. There have been no changes in the physical conditions of the Site that would affect the protectiveness of the remedy.

Changes in Standards

As the remedial work has been completed, most ARARs for soil contamination cited in the ROD and/or amended by ESDs have been met. The removal of contaminated soils to the water table has achieved the remedial objective to minimize the contamination to groundwater and prevent direct contact with soil. A list of ARARs is included in Attachment 3.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

No, there is other information that may call into question the protectiveness of the current remedy.

Technical Assessment Summary

There have been no changes in the physical conditions of the Site that would affect the protectiveness of the remedy. There have been no changes in the toxicity factors for the contaminants of concern that were used in the baseline risk assessment, and there have been no changes to the standardized risk assessment methodology that could affect the protectiveness of the remedy.

VIII. Issues

Table 3: Issues

Issues	Affects Current Protectiveness (Y/N)	Affects Future Protectiveness (Y/N)
Evidence of incomplete groundwater plume capture	N	Y
Optimization of the groundwater extraction system	N	N
Deed restrictions	N	Y

IX. Recommendations and Follow-up Actions

Table 4: Recommendations and Follow-up Actions

Issue	Recommendations and Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness (Y/N)	
					Current	Future
Evidence of incomplete groundwater plume capture	Move EW-3 and Evaluate capture	U.S. EPA/ State	U.S. EPA/ State	Summer '07	N	Y
Optimization of the groundwater extraction system	Continue to eliminate pre-treatment of the groundwater	U.S. EPA/ State	U.S. EPA/ State	Summer '08	N	N
Institutional controls need to be implemented. - Effective deed restrictions must be implemented and maintained on Peerless Site property and adjacent properties. Additionally, ICs must be monitored to assure long-term stewardship.	Prepare an IC Plan for title work, mapping of areas subject to restrictions, implementation of deed restrictions, and updating the O&M plan to monitor ICs in the long-term.	U.S. EPA	U.S. EPA/ State	6 months from the approval of this 5 year review	N	Y

X. Protectiveness Statement

The remedy at the Peerless Plating Site currently protects human health and the environment in the short term because there are no current exposure pathways and the remedy appears to be functioning as designed. The removal of onsite contaminated soils has achieved the remedial objective to minimize the migration of contaminants to the groundwater and prevent direct contact with and ingestion of, contaminants in the soil. Long term protectiveness will not fully be achieved until effective institutional controls have been implemented and maintained.

XI. Next Review

The next Five Year Review for the Peerless Plating Site is required by July 2012, five years from the date of this review.

Attachment 1

Site Location

Superfund
U.S. Environmental Protection Agency

Peerless Plating Co.
Muskegon County, MI

MID006031348

State

County

Site

Figure 1

Produced by Sarah Backhouse
U.S. EPA Region 5 on 5/1/07
Image Date: 2001

N

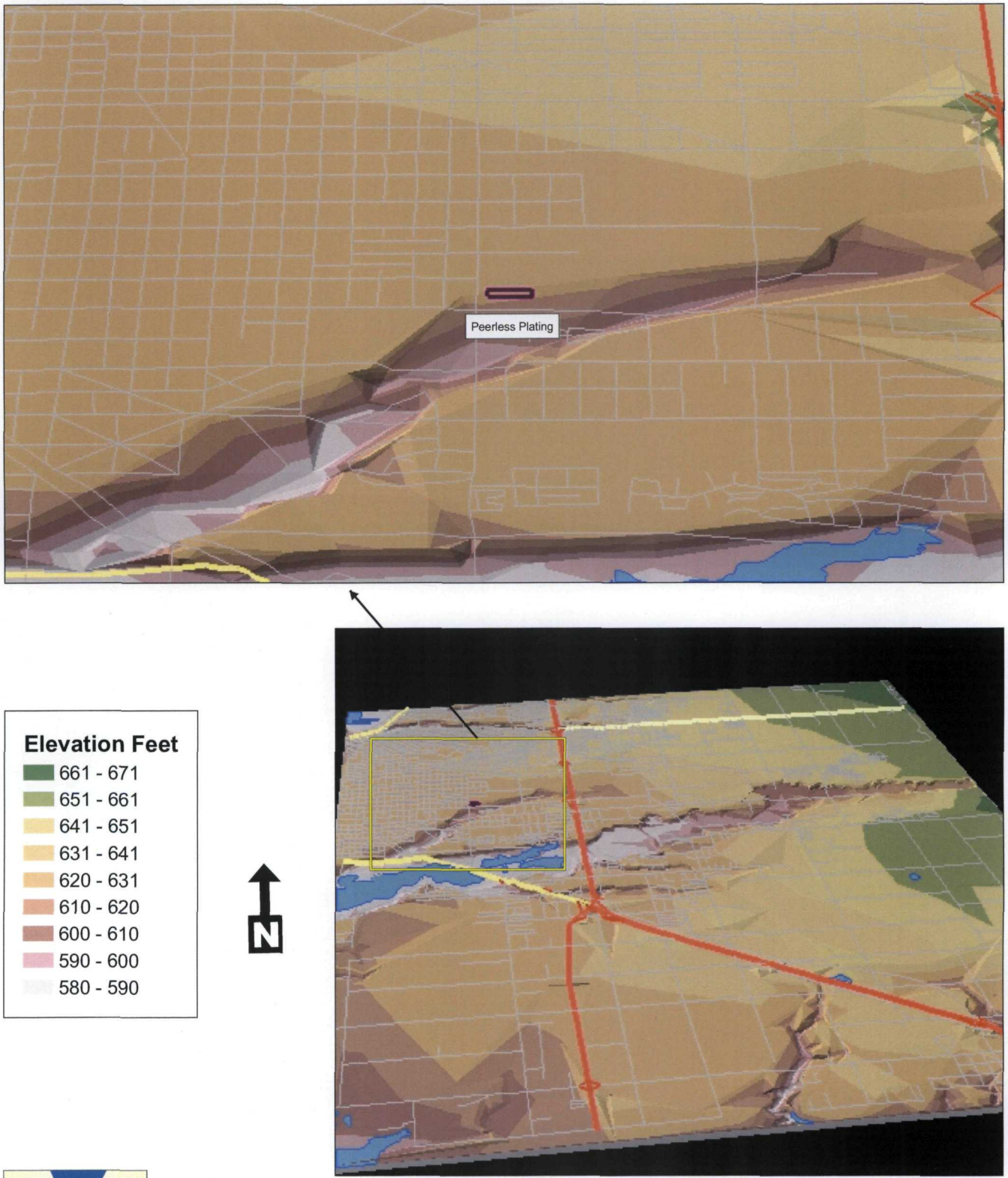
GEOS
Groundwater Evaluation and Optimization System

3D Surface Terrain Model

Superfund
U.S. Environmental Protection Agency

Peerless Plating Co.
Muskegon County, MI

MID006031348



GEOS
Groundwater Evaluation and Optimization System

Figure 2

Produced by Sarah Backhouse
U.S. EPA Region 5 on 5/1/07

Attachment 2

Documents Reviewed

Peerless Plating Record of Decision - September 21, 1992
Explanation of Significant Difference - August 7, 1997
Explanation of Significant Difference - April 5, 2001
Groundwater Treatment System Performance Test Technical Memorandum -April 2002
Superfund Preliminary Closeout Report for Peerless Plating - April 2001
Baseline Groundwater Monitoring Report Peerless Plating - May 31, 2001
Final Inspection Report Peerless Plating - May 6, 2002
Groundwater Capture Zone Evaluation Technical Memorandum - July 29, 2002
Remedial Action Report Draft Report Peerless Plating - September 2002
Final Remedial Action Investigation Report - September 1991
Explanation of Significant Differences – March 2006
Remediation System Evaluation – July 2006
Long Term Monitoring Report – November 2006

Attachment 3

B) Compliance with ARARs

The selected remedy shall comply with Federal or more stringent State applicable or relevant and appropriate requirements (ARARs) listed below:

1) Chemical-Specific ARARs

Chemical-specific ARARs regulate the release to the environment of specific substances having certain chemical characteristics. Chemical-specific ARARs typically determine the extent of cleanup at a site.

a) Groundwater

Federal ARARs

At the Peerless Plating site, MCLs and MCLGs are not applicable because the site is not a municipal water supply servicing 25 or more people. MCLs are relevant and appropriate since the aquifer in the area of contamination is suitable for use as a source of drinking water in the future. MCLGs are also relevant and appropriate when the standard is set at a level greater than zero (for non-carcinogens). The point of compliance for groundwater cleanup purposes shall be throughout the contaminated groundwater plume.

State ARARs

The U.S. EPA has determined that Rules 705(2) and (3), 707 - 715, 717(2), 719(1), and 723 of the Michigan Environmental Response Regulations are relevant and appropriate to the Peerless Plating site in compliance with Section 121(d)(2) of CERCLA. The cleanup standards presented in Table 7, which shall be attained by the selected remedy, were calculated pursuant to Act 307 Type B criteria.

b) Surface Water

Federal ARARs

Surface water quality standards for the protection of human health and aquatic life were developed under Section 304 of the Clean Water Act (CWA). The Federal Ambient Water Quality Criteria (AWQC) are non-enforceable guidelines that set pollutant concentration limits to protect surface waters.

Pursuant to Section 121 (d) of CERCLA, the Federal AWQC may be relevant and appropriate under the circumstances or a release or threatened release, depending on the designated or potential uses of the surface water, the environmental media affected by the releases or potential releases, and the latest information available. Since the treated groundwater will be discharged to Little Black Creek, designated as a coldwater fishery, the AWQC for protection of freshwater aquatic organisms are relevant and appropriate.

State ARARs

Part 4 of the Water Resources Commission Act (Act 245) establishes rules for water quality standards for surface water in the State of Michigan based on the Federal AWQC. The substantive requirements of Part 4 are applicable to Little Black Creek.

2) Location-Specific ARARs

Location-specific ARARs are those requirements that relate to the geographical position of a site.

Federal ARARs

Executive Order 11988 and 40 CFR Section 264.18, Protection of Flood Plains, are relevant and appropriate for this site. The Order and regulation requires that the groundwater treatment system be located above the 100-year flood plain elevation and be protected from erosional damage. Any portion of the remedy that is constructed in the 100-year flood plain must be adequately protected against a 100-year flood event (e.g., geotextiles should be used to secure topsoil, etc.)

Section 404 of the CWA regulates the discharge of dredged or fill material to waters of the United States. Construction of a surface water discharge point may be regulated under Section 404 of the CWA; therefore, the substantive requirements of Section 404 are applicable to the remedial action at the site.

State ARARs

The Inland Lakes and Streams Act (Act 346) regulates inland lakes and streams in the State. Act 346 would be applicable to any dredging or filling activity on Little Black Creek bottomlands.

The Soil Erosion and Sedimentation Control Act (Act 347) regulates earth changes which involves more than 1 acre or is within 500 feet of a lake or stream. Act 347 would be applicable to the soil excavation activities as the site is within 500 feet of Little Black Creek. Appropriate erosion and sedimentation control measures shall be planned.

3) Action-Specific ARARs

Action-specific ARARs are requirements that define acceptable treatment and disposal procedures for hazardous substances.

Federal ARARs

RCRA Subtitle C requirements regulate the treatment, storage, and disposal of hazardous waste. Because the inorganic contaminants in the soils and sludges are from a listed waste, RCRA Subtitle C requirements are applicable to the treatment, storage, or disposal of these soils and sludges. In addition, the groundwater contains organic contaminants. If, due to the filtering of the organic contaminants in the air stripping and ISVE processes, the spent carbon contains organic contaminants exceeding RCRA toxicity characteristic levels, RCRA Subtitle C requirements are applicable to the treatment or disposal of this material.

RCRA Land Disposal Restrictions (LDRs), 40 CFR Part 268, place restrictions on the land disposal of RCRA hazardous waste. LDRs are applicable to the storage/disposal of the stabilized soil, inorganic sludges from the groundwater precipitation, and possibly the building debris, which are to be disposed at an off-site RCRA Subtitle C facility. The soil, which is contaminated with inorganic contaminants from listed waste (electroplating wastes - F006, F007, F008, and F009), shall comply with LDRs through a treatability variance to the extent that such soils can not be treated to meet the LDR treatment standards. A treatablilty variance is justified because the LDR treatment standards are based on treating less complex matrices of industrial process wastes, as provided for under 40 CFR Section 268.44. The stabilized soil shall be tested to ensure that alternate treatment standards are met prior to disposal at a RCRA subtitle C facility. The inorganic sludges, which are contaminants from listed waste, shall be treated to meet LDR treatment standards prior to disposal at a RCRA Subtitle C facility. The building debris shall be tested to determine if it is contaminated with a listed waste or

is characteristic. If it is determined to be a hazardous waste, it shall be handled as a hazardous waste and shall comply with LDRs through a treatability variance for the debris that can not be treated to meet the LDR treatment standards, as provided for under 40 CFR Section 268.44. The treated debris shall meet alternate treatment standards prior to disposal at a RCRA Subtitle C facility.

RCRA, Guideline for the Land Disposal of Solid Wastes, 40 CFR Part 241 is applicable to the disposal of the building debris, if it is determined not to be a hazardous waste through TCLP tests.

The following RCRA requirements are also ARARs:

40 CFR Part 260 - Hazardous Waste Management System: General;

40 CFR Part 261 - Identification and Listing of Hazardous Waste;

40 CFR Part 263 - Standards Applicable to Transporters of Hazardous Waste; and,

40 CFR Part 264 - Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal (TDS) Facilities.

The Clean Water Act Section 402 is applicable to the remedial action at this site. The National Pollution Discharge Elimination System (NPDES) program is the national program for issuing, monitoring, and enforcing permits for direct discharges to surface water bodies. The NPDES program is implemented under 40 CFR Parts 122 - 125. The discharge of treated groundwater to Little Black Creek shall comply with the substantive requirements of the NPDES program.

The Clean Air Act protects and enhances the quality of the nation's air resources by regulating emissions into the air. Pursuant to Section 109 of the Clean Air Act, National Ambient Air Quality Standards have been promulgated in 40 CFR Part 50. These requirements include standards for particulate matter equal or less than 10 microns which is relevant and appropriate to the excavation of the soils at Peerless Plating.

RCRA Subpart AA restablishes air emission standards for process vents in 40 CFR Section 264.1030 - 264.1036. These requirements limit organic emissions and are applicable to the air stripping process.

State ARARs

The State of Michigan administers RCRA within the State. Under the Hazardous Waste Management Act (Act 64), the State regulates the generation, transport, treatment, storage, and disposal of hazardous waste. As with RCRA Subtitle C, above, Act 64 is applicable at the site.

The Michigan Solid Waste Management Act (Act 641) regulates the disposal of non-hazardous solid waste. Act 641 is applicable to the removal and disposal of non-hazardous treatment residue and non-hazardous debris from the site.

Parts 4, 9, and 21 of the Water Resources Commission Act (Act 245) establishes rules for water quality and administers discharge standards as promulgated by the Federal NPDES program. These parts are applicable to discharges of treated groundwater to Little Black Creek. Because the discharge shall occur on-site, a permit is not required, but the discharge must meet the substantive requirements of an NPDES permit.

Michigan's Air Pollution Control Act (Act 348) regulates air quality and is relevant and appropriate at the site.

The Michigan Environmental Response Act (Act 307) provides for the identification, risk assessment, and evaluation of contaminated sites within the State. The U.S. EPA has determined that Rules 705(2) and (3), 707 - 715, 717(2), 719(1), and 723 are applicable to the Peerless Plating site in compliance with Section 121(d)(2) of CERCLA. The Act 307 rules require that remedial actions shall be protective of human health, safety, the environment, and the natural resources of the State. To achieve this standard of protectiveness, the Act 307 rules require that a remedial action achieve a degree of cleanup under either Type A (cleanup to background levels), Type B (cleanup to risk-based levels), or Type C (cleanup to risk-based levels under site-specific considerations) criteria. U.S. EPA has determined that the Type B criteria are necessary to be protective and are, therefore, applicable to the Peerless Plating site.

4) To Be Considered

In implementing the selected remedy, U.S. EPA considers the CERCLA Off-Site Policy. This directive, which is not legally binding, establishes CERCLA's policy for off-site

legally binding, establishes CERCLA's policy for off-site disposal of CERCLA-related wastes. U.S. EPA will follow the CERCLA Off-Site Policy.

The promulgating notice for process vents (40 CFR Part 264 Subpart AA, 55 FR 25454 - June 20, 1990) states that appropriate controls should be applied to in-situ treatment if necessary. Therefore, the emission standards of RCRA Subpart AA are to be considered for the emissions resulting from the ISVE process.

Attachment 4

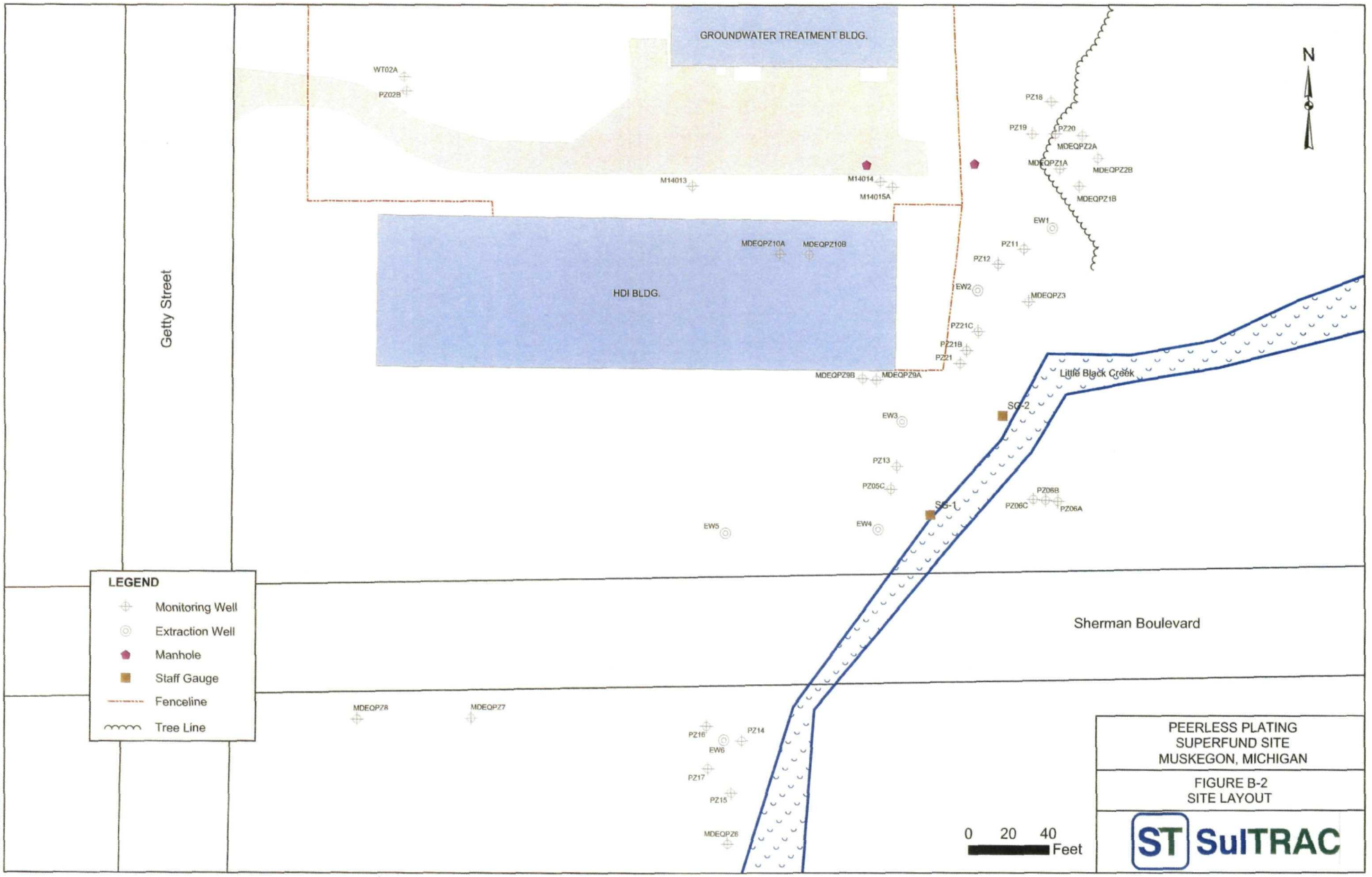

GROUNDWATER TREATMENT BLDG.
HDI BLDG.
Getty Street
Sherman Boulevard
Little Black Creek
N
WT02A
PZ02B
M14013
M14014
M14015A
MDEQPZ10A
MDEQPZ10B
EW1
PZ18
PZ19
PZ20
MDEQPZ2A
MDEQPZ1A
MDEQPZ2B
MDEQPZ1B
PZ11
PZ12
EW2
MDEQPZ3
PZ21C
PZ21B
PZ21
MDEQPZ9B
MDEQPZ9A
SG-2
EW3
PZ13
PZ05C
SG-1
EW4
EW5
PZ06B
PZ06C
PZ06A
MDEQPZ8
MDEQPZ7
PZ16
PZ14
EW6
PZ17
PZ15
MDEQPZ6
LEGEND
Monitoring Well
Extraction Well
Manhole
Staff Gauge
Fenceline
Tree Line
0 20 40
Feet
PEERLESS PLATING
SUPERFUND SITE
MUSKEGON, MICHIGAN
FIGURE B-2
SITE LAYOUT
SulTRAC

TABLE A-1
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2006 SAMPLING EVENTS FOR WT02A

Sample Number:	Groundwater	WT02A		WT02A		WT02A		WT02A		WT02A		WT02A		WT02A		WT02A		WT02A	
Sampling Date:	**Cleanup Goal**	11/20/02		5/28/03		11/17/03		5/18/04		11/30/04		6/7/05		9/13/05		3/23/2006		9/19/2006	
Groundwater Elevation:[1]	NA	596.55		596.59		596.73		597.63		596.89		597.27		596.43		598.33		597.19	
Well Bottom Elevation:[1]	NA	589.53		589.53		589.53		589.53		589.53		589.53		589.53		589.53		589.53	
Portion of Glacial Unit:	NA	Upper		Upper		Upper		Upper		Upper		Upper		Upper		Upper		Upper	
pH (standard units)	NA	7.07		6.09		8.34		6.87		7.27		6.59		7.28		6.34		7.21	
Conductivity (mS/cm)	NA	1.27		1.33		1.19		1.340		1.91		1.38		1.50		1.06		1.54	
Turbidity (NTU)	NA	0		10		10		1.0		0		10		0		1		0	
Inorganic Analytes											**Result (µg/L)**								
Aluminum	50	47.7		**913**		29.7	J,L,*	80.0	U,L	**255**	K,*	100	U	100	U	100	U	200	U
Antimony	3	4.0	U	4.0	U	4.0	U	4	U	4	U	4.0	U	4	U	4	U	4	U
Arsenic	0.2	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	**0.5**	**J**
Barium	2,000	22.6		36.0		22.4		34.3		49.6		40.9	K	40.4		21.9		32.7	J
Beryllium	NA	2.8	U	NA		0.3	J,K,*	1.0	U	0.3	J,K,*	1.0	U,L	1.0	U	1.00	U	5.0	U
Cadmium	4	**126**		**94.7**		**77.3**	L	**117**		**118**	**K,***	**127**		**122**		**63.2**		**113**	
Calcium	NA	64,100		NA		64,400	L	78,300		76,500		67,700		58,300		49,100		68,800	
Chromium	7,000	0.8	J	4.9		3.2	J,*	6.7	L	3.9	J,*	4.3	J	4.8	J	2.80	J	1.9	J,L
Cobalt	NA	4.2	U	NA		0.9	J,K	2.0	U,L	2.3	K,*	0.9	J	0.8	J	3.00	U	0.5	J,*
Copper	NA	182		NA		130	K	107	*	154	K,*	142		142		105		134	
Iron	NA	19.0	J	NA		30.5		20.3	J	258	K,*	8.3	J,K,*	14.2	J	23.8	J	100	U
Lead	5	2.0	U	0.6	J	4.0	U	2.0	U	2.0	U	2.0	U	2.0	U	3.0	U	2.0	U
Magnesium	NA	11,000		NA		11,100		14,200		14,000		11,800		10,000		9,050		10,800	
Manganese	NA	24.3		NA		12.2		12.9	*	15,7	K,*	18.5	K	14.7		12.0		16.0	
Mercury	2	0.5	U	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5		0.5	U,L	0.5	U	0.5	U
Nickel	57	28.2		19.0		14.9		27.0		22.6	K	30.2	K	18.9		14.2	K	18.5	J
Potassium	NA	5,200	J, K	NA		7,840	K,*	3,620	L,*	4,930	K	7,550	K	3,390		2,670		4,760	
Selenium	NA	1.1	J	NA		8.0	U,L	8	U	4	U	2.0	J	1	J	4.0	U	4	U
Silver	0.1	0.5	U	2.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	5.00	U	10.0	U
Sodium	NA	194,000	K	NA		886,000		160,000		249,000		180,000		209,000		122,000		186,000	
Thallium	0.5	2.0	U	2.0	U	4.0	U	2.0	U	1.0	U	0.6	J	1.0	U	2.0	U	1.0	U
Vanadium	NA	4.8	U	NA		18.8	J	10.0	U	20.0	U,L	10.0	U	10.0	U	5.00	U	1.8	J
Zinc	NA	905		NA		542		759		679		1,090		826		596		758	
Hexavalent Chromium	2.0	10	U,L	10.0	UJ,L	**5.0**	J,L	10.0	U	1.0	U,L	1.0	U,J,L	10.0	U,J,L	1.26	J,L	10.0	U,J,L
Cyanide	4	**44**	J	**202**		**52**		**15**	**J**	**20**		**13**		**37**		**19**		**39**	
Volatile Organic Compounds											**Result (µg/L)**								
1,1,1-Trichloroethane	117	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	700	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Benzene	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	6	1.0	U	1.0	U	1.0	U	1.1		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	30	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
m- and p-Xylenes	59	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
o-Xylene	59	2.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	100	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	3	1.0	U	1.0	U	1.5		1.5	J	1.0	U	0.6	J	1.0	U	1.7		0.45	J
Vinyl Chloride	0.2	1.0	U	1.0	UJ	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	J	1.0	U

TABLE A-2
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2006 SAMPLING EVENTS FOR PZ02B

Sample Number:	Groundwater	PZ02B		PZ02B-D		PZ02B		PZ02B		PZ02B-D		PZ02B		PZ02B-D		PZ02B		PZ02B		PZ02B		PZ02B		PZ02B	
Sampling Date:	**Cleanup Goal**	11/20/02		11/20/02		05/28/03		11/17/03		11/17/03		05/18/04		05/18/04		11/30/04		06/09/05		09/13/05		03/21/06		09/19/06	
Groundwater Elevation:[1]	NA	596.26		596.26		597.20		598.00		598.00		597.27		597.27		596.54		596.92		596.07		597.96		596.97	
Well Bottom Elevation:	NA	549.75		549.75		549.75		549.75		549.75		549.75		549.75		549.75		549.75		549.75		549.75		549.75	
Portion of Glacial Unit:	NA	Lower		Lower		Lower		Lower		Lower		Lower		Lower		Lower		Lower		Lower		Lower		Lower	
pH (standard units)	NA	8.13		8.13		7.56		8.81		8.81		7.04		7.04		8.01		7.07		7.73		7.94		7.95	
Conductivity (mS/cm)	NA	0.757		0.757		0.826		0.759		0.759		0.635		0.635		0.705		--		0.636		0.507		0.340	
Turbidity (NTU)	NA	0		0		10		10		10		2.0		2.0		0		--		7.73		11.0		0.0	
Inorganic Analytes																									
												Result (µg/L)													
Aluminum	50	56.6		46.6		24.3	U	12.5	J,L	40.0	U,L	31.4	J,L	41.7	J,L	31.6	J,*	100	U	100	U	100	U	200	U
Antimony	3	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4	U	4	U	4	U	4.0	U	4	U	4.0	U	4	U
Arsenic	0.2	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Barium	2,000	81.5		81.7		82.9		86.1		81.2		77.9		84.8		80.9		99	K	80.7		78.6		86.2	J
Beryllium	NA	2.8	U	2.8	U	NA		0.5	U	0.5	U	1.0	U	1.0	U	0.5	U,*	1.0	U,L	1.0	U	1.00	U	5.0	U
Cadmium	4	1.0	U	1.0	U	1.3	U	0.9	K,J	1.1	K,J	1.0	U	1.0	U	1.3	U,*	2.0	U	2.0	U	0.846	J	5.0	U
Calcium	NA	60,900		60,700		NA		64,800	K	61,600	K	56,600		56,000		57,800		65,100	K	58,200		54,700		59,000	
Chromium	7,000	0.9	U	0.9	U	1.3	U,L	0.9	J	2.0	U	4.8	L	4.8	L	2.0	U,*	4.0	J,K	4.8	J	5.0	U	10.0	U,L
Cobalt	NA	4.2	U	4.2	U	NA		2.0	U	2.0	U	2.0	U	2.0	U	0.8	J,K,*	0.3	J	1.0	U	3.00	U	50.0	U,*
Copper	NA	4.4	U	4.4	U	NA		3.0	U	3.0	U	6	U,*	2.8	J,K,*	3.0	U,*	6.0	U	6.0	U	1.78	J	25.0	U
Iron	NA	42	U	42.0	U	NA		30.0	U	30.0	U	42.4		37.0		75.5	K,*	49.4	K,*	6.2	J	23.1	J	100	U
Lead	5	2.0	U	2.0	U	2.0	U	4.0	U	2.0	U	2.0	U	1.0	J	2.0	U	2.0	U	2.0	U	3.0	U	2.0	U
Magnesium	NA	17,600		17,400		NA		19,300		18,000		16,600		17,800		16,900		17,600		17,700		16,900		17,600	
Manganese	NA	8.6	U,*	8.6	U,*	NA		1.0	U	1.0	U	1.3	K,*	1.1	K,*	1.0	K,*	0.3	J,K	1.0	J	1.0	U	15.0	U
Mercury	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	UJ	0.5	UJ	0.5	U	0.5	J	0.5	U,L	0.5	U	0.5	U
Nickel	57	1.2	J	1.0	J	2.3	U	10.0	U	10.0	U	1.4	J	1.0	J	10.0	U	4.6	K	1.2	J	3.00	U	0.9	J
Potassium	NA	1,620	J, K	1,610	J, K	NA		7,610	K,*	4,850	K,*	757	J,L,*	1,100	J,L,*	1,480	K	6,180	K	1,390	J	1,300	J	1,490	J
Selenium	NA	4.0	U	4.0	U	NA		12.0	U,L	8.0	U,L	4	U	4	U	4	U	4.0	U	4	J	4.0	U	4	U
Silver	0.1	1.7	U	1.7	U	2.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	J	5.00	U	10.0	U
Sodium	NA	40,200	K	40,600	K	NA		1,030,000		234,000		36,600		36,800		39,200		41,200		36,800		35,100		35,500	
Thallium	0.5	2.0	U	2.0	U	2.0	U	6.0	U	2.0	U	2.0	U	2.0	U	1.0	U	1.0	U	1.0	UJ	2.0	U	1.0	U
Vanadium	NA	17.0	U	17.0	U	NA		19.8	J	13.9	J	10.0	U	10.0	U	20.0	U,L	10.0	U	10.0	UJ	5.00	U	0.4	J
Zinc	NA	11.5	J	36.0	U	NA		10.9	J	9.1	J	30.0	U	30.0	U	7.2	J	30.0	U	30.0	UJ	8.77	J	25.7	J
Hexavalent Chromium	20	10	U	10	U	10.0	UJ,L	10.0	U,*	10.0	U,J,L	10.0	U	10.0	UJ,L	1.0	U,L	1.0	U,J,L	10.0	U,J,L	10.0	U,J,L	10.0	U,J,L
Cyanide	4	8	U	8	U	8	U	8	U	8	U	8	UJ	8	UJ	5	U	2.0	U,J	5	U	10	U	3	J,K
Volatile Organic Compounds																									
												Result (µg/L)													
1,1,1-Trichloroethane	117	1.0	UJ	1.0	UJ	1.0	U	1.0	U	1.0	UJ	1.0	U,J	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	700	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Benzene	1	1.0	UJ	1.0	UJ	1.0	U	1.0	U	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	6	1.0	UJ	1.0	UJ	1.0	U	1.0	U	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	30	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
m- and p-Xylenes	59	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
o-Xylene	59	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	100	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U,J	0.6	J	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl Chloride	0.2	1.0	U	1.0	U	1.0	UJ	1.0	U,J	1.0	U	1.0	U,J	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U

TABLE A-3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2006 SAMPLING EVENTS FOR M14013

Sample Number:	Groundwater	M14013		M14013		M14013		M14013		M14013		M14013		M14013		M14013		M14013-D	
Sampling Date:	**Cleanup Goal**	11/21/02		05/28/03		11/17/03		05/18/04		11/30/04		06/07/05		09/13/05		03/21/06		09/20/06		09/20/06	
Groundwater Elevation:[1]	NA	594.81		594.55		594.58		595.88		595.21		595.46		594.62		596.51		595.60		595.60	
Well Bottom Elevation:[1]	NA	581.89		581.89		581.89		581.89		581.89		581.89		581.89		581.89		581.89		581.89	
Portion of Glacial Unit:	NA	Upper		Upper		Upper		Upper		Upper		Upper		Upper		Upper		Upper		Upper	
pH (standard units)	NA	7.52		7.55		7.96		7.10		7.55		7.06		8.56		7.18		7.13		7.13	
Conductivity (mS/cm)	NA	0.962		0.920		0.461		0.418		0.762		0.718		0.836		0.503		0.570		0.570	
Turbidity (NTU)	NA	12		10		-10		0.0		11		60		0		9.0		0.0		0.0	
Inorganic Analytes										**Result (µg/L)**											
Aluminum	50	**87.8**		**3,490**		45.2	L	80.0	U	28.1	J,*	100	U	100	U	**112**		**96.4**	J	200	U
Antimony	3	2.1	J	1.2	J	4	U	4	U	1	J	4.0	U	3	J	4.0	U	1	J	1	J
Arsenic	0.2	2	U	**0.8**	J	2	U	2.0	U	2.0	U	2.0	U	**0.5**	J,K	2.0	U	2.0	U	2.0	U
Barium	2,000	24.5		37.4		11.5		19.0		13.1		24.3	K	21.0		11.3		13.9	J	13.2	J
Beryllium	NA	2.8	U	NA		0.5	U	1.0	U	0.5	U,*	1.0	L,U	1.0	U	1.00	L	5.0	U	5.0	U
Cadmium	4	**1,440**		**3,830**		**1,120**		**1,340**		**1,640**	*	**2,220**		**2,210**		**1,650**		**1,880**		**1,810**	
Calcium	NA	92,000		NA		58,500	K	44,100		77,300		90,500		80,400		49,600		60,700		60,200	
Chromium	7,000	5.3		592		10.1		5.0	L	7.8	K,*	8.9		10.2		26.2		24.7	L	10.5	L
Cobalt	NA	2.4	J	NA		5.4		3.5	L	5.0	K,*	4.3		3.1		2.68	J	3.3	J,*	2.8	J
Copper	NA	4.4	U	NA		2.6	J	1.9	J,K,*	3.0	U,*	6.0	U	2.0	J	5.31		2.4	J	2.1	J
Iron	NA	34.7	J	NA		37.2		11.0	J	34.0	K,*	34.9	K,*	12.6	J	136		80.5	J	100	U
Lead	5	2	U	**23.5**		2	U	2.0	U	2.0	U	2.0	U	2.0	U	3.0	U	2.0	U	1.2	J,K
Magnesium	NA	15,800		NA		7,770		7,040		13,500		14,000		15,300		8,690		10,500		10,500	
Manganese	NA	251	*	NA		155		110	*	181	*	249	K	417		97.0		203		164	
Mercury	2	0.5	U	0.5	U,L	0.1	J	0.5	UJ	0.5	U	0.5	U	0.5	U,L	0.5	U	0.5	U	0.5	U
Nickel	57	**80.1**		**138**		**60.5**		**73.0**		**90.8**	K	**124**		**102**		**85.8**		**100**		**95.2**	
Potassium	NA	11,100	J, K	NA		12,800	K,*	15,800	L,*	7,850	K	14,800	K	6,330		9,520		9,690		9,590	
Selenium	NA	4	U	NA		12	U,L	4	U	4	U	4.0	U	4	U	4.0	U	4	U	4	U
Silver	0.1	1.7	U	2	U	4	U	4.0	U	**1.0**	**J,K**	4.0	U	4.0	U	5.00	U	10.0	U	10.0	U
Sodium	NA	37,600	K	NA		905,000		16,700		38,700		43,600		56,800		51,600		37,700		38,200	
Thallium	0.5	2	U	2	U	4	U	2.0	U	1.0	U	1.0	U	1.0	U	2.0	U	1.0	U	1.0	U
Vanadium	NA	17	U	NA		19.7	J	10.0	U	20.0	U	10.0	U	10.0	U	5.00	U	0.6	J	0.6	J
Zinc	NA	651		NA		538		671		770		1,220		970		907		956		904	
Hexavalent Chromium	2.0	10	U	10	UJ,L	**3.3**	J,*	10.0	U	**10.9**	**L**	**18.2**	**J,L**	10.0	U,J,L	**3.77**	**J,L**	**4.1**	**J,L**	**4.3**	**J,L**
Cyanide	4	**6**	J	**1,090**		**27**		**12**	**J**	3	J	**6.0**		**7**		**52**		**17**	**K**	**9**	**K**
Volatile Organic Compounds										**Result (µg/L)**											
1,1,1-Trichloroethane	117	1	UJ	1	U	1	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	700	1	UJ	1	U	1	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.4	1	UJ	1	U	1	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Benzene	1	1	UJ	1	U	1	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	6	1	UJ	1	U	1	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	30	1	UJ	1	U	1	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
m- and p-Xylenes	59	2	UJ	2	U	2	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
o-Xylene	59	1	UJ	1	U	1	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	100	1	UJ	1	U	1	U	1.0	U	1.0	U	1.0	U	1.0	U	0.3	U	1.0	U	1.0	U
Trichloroethene	3	**26**	J	1	U	**22**		**4.2**	J	**53**		**38.0**	J	**370**	J	**7**		**20**		**21**	
Vinyl Chloride	0.2	1	UJ	1	UJ	1	U	1.0	U,J	**1.5**		1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U

TABLE A-4
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2006 SAMPLING EVENTS FOR M14014

Sample Number:	**Groundwater Cleanup**	M14014		M14014		M14014		M14014	
Sampling Date:	**Goal (µg/L)**	06/07/05		09/13/05		03/21/06		09/20/06	
Groundwater Elevation:[1]	NA	595.01		594.15		596.06		595.24	
Well Bottom Elevation:[1]	NA	582.36		582.36		582.36		582.36	
Portion of Glacial Unit:	NA	Upper		Upper		Upper		Upper	
pH (standard units)	NA	6.86		7.94		7.21		7.49	
Conductivity (mS/cm)	NA	0.616		0.674		0.856		0.480	
Turbidity (NTU)	NA	10		0		159		0	
Inorganic Analytes		**Result (ug/L)**							
Aluminum	50	100.0	U	100	U	100	U	200	U
Antimony	3	4.0	U	4	U	4.0	U	4	U
Arsenic	0.2	2.0	U	2.0	U	2.0	U	2.0	U
Barium	2,000	27.6	K	20.9		34.0		19.2	J
Beryllium	NA	1.0	U,L	1.0	U	1.00	U	5.0	U
Cadmium	4	**2,180.0**		**1,440**		**3,740**		**1,280**	
Calcium	NA	54,500.0		39,400		66,400		44,800	
Chromium	7,000	6.6		6.0	J	3.69	J	3.6	J,L
Cobalt	NA	2.0		1.6		1.92	J	1.70	J,*
Copper	NA	2.2	J	2.2	J	3.66	J	2.7	J
Iron	NA	46.8	K,*	7.8	J	32.4	J	61.3	J
Lead	5	2.0	U	2.0	U	3.0	U	2.0	U
Magnesium	NA	13,100.0		8,440		20,800		10,700	
Manganese	NA	249.0	K	166		123		234	
Mercury	2	0.5	U	0.5	U,L	0.5	U	0.5	U
Nickel	57	125.0		**80.1**		**136**		**67.1**	
Potassium	NA	9,450.0	K	6,050		6,170		4,740	J
Selenium	NA	4.0	U	4	U	4.0	U	4	U
Silver	0.1	4.0	U	4.0	U	5.00	U	10.0	U
Sodium	NA	67,200.0		76,300		88,000		33,400	
Thallium	0.5	1.0	U	1.0	U	2.0	U	1.0	U
Vanadium	NA	10.0	U	10.0	U	5.00	U	0.9	J
Zinc	NA	1,220.0		672		1,340		623	
Hexavalent Chromium	2.0	1.0	U,J,L	10.0	U	0.858	J,L	10.0	U,J,L
Cyanide	4	**12.0**		**11**		**19**		**20**	**J,K**
Volatile Organic Compounds		**Result (ug/L)**							
1,1,1-Trichloroethane	117	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	700	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.4	1.0	U	1.0	U	1.0	U	1.0	U
Benzene	1	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	6	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	30	1.0	U	1.0	U	1.0	U	1.0	U
m- and p-Xylenes	59	2.0	U	2.0	U	2.0	U	2.0	U
o-Xylene	59	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	100	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	3	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl Chloride	0.2	1.0	U	1.0	U	1.0	U,J	1.0	U

TABLE A-5
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2006 SAMPLING EVENTS FOR M14015A

Sample Number:	Groundwater	M14015A		M14015A		M14015A-D		M14015A		M14015A		M14015A		M14015A		M14015A		M14015A		M14015A	
Sampling Date:	**Cleanup Goal**	11/21/02		05/28/03		05/28/03		11/18/03		05/18/04		11/30/04		06/07/05		09/13/05		03/21/06		09/20/06	
Groundwater Elevation:[1]	NA	595.01		--		--		594.64		595.12		594.65		594.83		594.06		595.86		595.07	
Well Bottom Elevation:[1]	NA	569.05		569.05		569.05		569.05		569.05		569.05		569.05		569.05		569.05		569.05	
Portion of Glacial Unit:	NA	Middle		Middle		Middle		Middle		Middle		Middle		Middle		Middle		Middle		Middle	
pH (standard units)	NA	7.45		--		--		7.74		6.86		7.75		7.36		7.35		7.33		7.20	
Conductivity (mS/cm)	NA	1.08		--		--		0.93		0.874		0.945		0.691		0.910		0.958		0.840	
Turbidity (NTU)	NA	218		--		--		10		120.0		129		102		0		159		29	
Inorganic Analytes										**Result (µg/L)**											
Aluminum	50	**735**		**3,040**		**3,770**		**5,820**	L	**3,820**		**2,680**	*	28.6	J,L	**54.9**	J	**1,000**		**423**	
Antimony	3	4.0	U	4.0	U	4.0	U	4.0	U	4	U	4	U	4.0	U	4	U	4.0	U	4	U
Arsenic	0.2	2.0	U	**0.6**	J	**1.0**	J	**1.5**	J	**1.1**	**J**	**0.6**	**J**	2.0	U	2.0	U	**0.8**	J	2.0	U
Barium	2,000	29.2		47.6		54.3		69.6		55.9		47.4		33.8	K	37.6		48.0		32.9	J
Beryllium	NA	2.8	U	NA		NA		0.2	J,K	1.0	U	0.5	U,*	1.0	U,L	1.0	U	1.00	U	5.0	J
Cadmium	4	**490**		**609**		**738**		**891**		**683**		**488**	*	**175**		**231**		**335**		**209**	
Calcium	NA	79,900		NA		NA		90,300		75,900		75,100		69,000		72,900		85,100		66,100	
Chromium	7,000	34.8		130		157		227		143		99.4	L,*	27.7		18.7		62.5		39.1	L
Cobalt	NA	2.0	J	NA		NA		4.6	K	4.5	L	5.6	K,*	3.7		5.7		2.04	J	2.5	J,*
Copper	NA	4.2	J	NA		NA		20.9	K	12.2	K,*	3.0	U,L,*	6.0	U	2.5	J	9.18		3.3	J
Iron	NA	2,270		NA		NA		11,400		5,140		3,580	K,*	2,470	K,*	1,270		3,340		1,110	
Lead	5	0.6	J	1.9	J	2.5		**6.3**		3.8		1.4	J	2.0	U	2.0	U	3.0	U	2.0	U
Magnesium	NA	13,700		NA		NA		17,100		15,000		13,900		12,300		13,400		18,000		13,400	
Manganese	NA	1,920	*	NA		NA		1,150		1,860	*	1,660	*	1,330	K	2,210		814		1,020	
Mercury	2	0.5	U	0.5	U,L	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U	0.5	U,L	0.5	U	0.5	U
Nickel	57	27.6		38.2		45.9		**61.0**		47.1		37.6	K	14	K	15.9		25.0	K	16.0	J
Potassium	NA	4,090	J, K	NA		NA		7,430	K,*	4,910	L,*	4,950	K	8,200	K	5,050		5,420		5,620	
Selenium	NA	4.0	U	NA		NA		4.0	U	4	U	4	U	1.0	J	4	J	1.1	J	4	U
Silver	0.1	1.7	U	2.0	U	2.0	U	**1.2**	J	4.0	U	4.0	U	1.2	J	4.0	U	5.00	U	10.0	U
Sodium	NA	131,000	K	NA		NA		81,700	L	75,500		79,900		78,300		76,100		108,000		79,100	
Thallium	0.5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	1.0	U	0.5	J	1.0	U
Vanadium	NA	17.0	U	NA		NA		15.4	J	5.8	J	20.0	U,L	10.0	U	10.0	U	2.78	J	1.1	J
Zinc	NA	229		NA		NA		398		331		240		115		124		199		127	
Hexavalent Chromium	2.0	10	U	10.0	UJ,L	10.0	UJ,L	**13.8**		**12.6**		**15.1**	L	**9.8**	**J,L**	**7.4**	**J**	**21.3**	**J,L**	**15.1**	**J,L**
Cyanide	4	**54**	J	**155**		**143**		**195**	J	**209**	**J**	**140**		**82**		**61**		**91**		**102**	J
Volatile Organic Compounds										**Result (µg/L)**											
1,1,1-Trichloroethane	117	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	700	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Benzene	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	6	1.0	U	0.85	J	0.89	J	1.0	U,J	1.2		0.9	J	2.1		1.0	U	0.6	J	0.69	J
Ethylbenzene	30	1.0	U	1.0	U	1.0	U	**1.0**	**U**	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
m- and p-Xylenes	59	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
o-Xylene	59	1.0	UJ	**1.0**	**U**	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	100	1.0	U	**1.0**	**U**	**1.0**	**U**	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	3	1.0	U	**1.0**	**U**	1.0	U	1.0	U	**1.0**	**U,J**	**1.0**	U	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl Chloride	0.2	1.0	U	1.0	UJ	1.0	UJ	1.0	U,J	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U

TABLE A-6
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2006 SAMPLING EVENTS FOR PZ11A

Sample Number:	Groundwater	PZ11A		PZ11A		PZ11A		PZ11A		PZ11A		PZ11A		PZ11A		PZ11A	
Sampling Date:	Cleanup Goal	11/21/02		05/28/03		11/17/03		05/19/04		11/30/04		06/07/05		09/13/05		03/22/06		09/20/06	
Groundwater Elevation:[1]	NA	592.93		593.15		592.92		593.61		593.66		593.54		592.96		594.47		594.01	
Well Bottom Elevation:[1]	NA	588.55		588.55		588.55		588.55		588.55		588.55		588.55		588.55		588.55	
Portion of Glacial Unit:	NA	Upper		Upper		Upper		Upper		Upper		Upper		Upper		Upper		Upper	
pH (standard units)	NA	7.12		6.89		7.5		7.43		7.16		8.30		6.71		6.53		7.20	
Conductivity (mS/cm)	NA	0.991		0.849		0.865		0.625		0.607		0.566		0.622		0.490		0.460	
Turbidity (NTU)	NA	10		10		-10		1.0		>999		0		0		0		0	
Inorganic Analytes																			
Aluminum	50	**36,400**		49.0		**184**	L	80.0	U	**80,000**	*	**255**	L	100	U	100	U	200	U
Antimony	3	4.0	U	4.0	U	4.0	U	4	U	4	U	4.0	U	4	U	4.0	U	4	U
Arsenic	0.2	**17.5**		2.0	U	2.0	U	2.0	U	**22.1**		2.0	U	2.0	U	2.0	U	2.0	U
Barium	2,000	775		62.1		65.1		39.0		1,260		52.0	K	40.0		39.9		40.0	J
Beryllium	NA	3.2		NA		0.5	U	1.0	U	5.4	*	1.0	U,L	1.0	U	1.00	U	5.0	U
Cadmium	4	**3,180**		**603**		**713**		**478**		**11,500**	*	**679**		**515**		**815**		**685**	
Calcium	NA	213,000		NA		96,600	K	65,600		328,000		68,500		47,100		68.4		59,500	
Chromium	7,000	233		20.6		21.4		28.9	L	480	L,*	27.9		28.5		19.3		60.1	L
Cobalt	NA	25.6		NA		0.5	J	2.0	U,L	66.5	K,*	0.4	J	0.7	J	3.00	U	0.9	J,*
Copper	NA	111		NA		9.8		10.4	K,*	285	K,*	6.0		4.7	J	10.6		6.0	J,L
Iron	NA	55,400		NA		189		54.9		117,000	*	274	K,*	19.4	J	116		31.0	J
Lead	5	**69.2**		2.0	U	2.0	U	2.0	U	**125**		2.0	U	0.9	J	3.0	U	2.0	U
Magnesium	NA	79,100		NA		35,500		30,000		164,000		27,200		14,600		40,900		18,200	
Manganese	NA	8,380	*	NA		26.9		1.0	K,*	26,500	*	97.3	K	48.6		7.49	L	4.4	J
Mercury	2	0.2	J	0.5	U	0.1	J	0.5	UJ	0.3	J	0.5	U	0.5	U,L	0.5	U	0.5	U
Nickel	57	**97.6**		3.4	L	5.8	J	6.3	J	**228**	K	7.5	K	4.2		5.03	K	5.60	J,K
Potassium	NA	14,800	J, K	NA		10,100	K,*	3,620	L,*	17,700	K	8,820	K	5,210		4,290		4,820	J
Selenium	NA	4.0	U	NA		20.0	U,L	4	U	12	U	4.0	U	4	U	4.0	U	4	U
Silver	0.1	1.7	U	2.0	U	4.0	U	4.0	U	**2.0**	J,K	4.0	U	4.0	U	5.00	U	10.0	U
Sodium	NA	55,700	K	NA		861,000		11,100		22,000		21,000		37,100		8,960		8,700	
Thallium	0.5	2.0	U	2.0	U	6.0	U	2.0	U	**2.1**	J	1.0	U	1.0	U	2.0	U	1.0	U
Vanadium	NA	55.5	L	NA		20.1	J	10.0	U	143	K	10.0	U	10.0	U	5.00	U	0.7	J,L
Zinc	NA	304		NA		28.3	J	30.0	U	602		12.4	J	30.0	U	6.70	J	29.9	J
Hexavalent Chromium	2.0	**30**		**14.6**		**18.2**		**17.6**		**13.0**	L	**16.0**	J,L	**14.0**	J,L	**18.1**	J,L	**56.6**	J,*
Cyanide	4	**76**	J	**115**		**118**		**131**	J	**68**		**61**		**31**		**322**		**81**	
Volatile Organic Compounds																			
1,1,1-Trichloroethane	**117**	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	700	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Benzene	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	6	1.0	U	1.0	U	1.0	U	0.78	J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	30	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
m- and p-Xylenes	59	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
o-Xylene	59	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	100	1.0	U	1.0	U	1.0	U	0.64	J	1.0	U	1.0	U	1.0	U	1.0	U	0.4	J
Trichloroethene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl Chloride	0.2	1.0	U	1.0	UJ	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U,J

TABLE A-7
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2006 SAMPLING EVENTS FOR PZ11B

Sample Number:	Groundwater	PZ11B		PZ11B		PZ11B		PZ11B		PZ11B		PZ11B		PZ11B		PZ11B	
Sampling Date:	**Cleanup Goal**	11/21/02		05/28/03		11/17/03		05/19/04		11/30/04		06/07/05		09/13/05		03/22/06		09/20/06	
Groundwater Elevation:[1]	NA	592.88		592.53		588.81		593.53		593.36		593.45		592.85		594.39		594.28	
Well Bottom Elevation:[1]	NA	573.62		573.62		573.62		573.62		573.62		573.62		573.62		573.62		573.62	
Portion of Glacial Unit:	NA	Middle		Middle		Middle		Middle		Middle		Middle		Middle		Middle		Middle	
pH (standard units)	NA	7.72		6.98		7.54		7.00		6.84		6.78		6.53		6.75		6.86	
Conductivity (mS/cm)	NA	0.846		0.990		0.574		0.576		0.443		0.363		0.490		0.564		0.740	
Turbidity (NTU)	NA	329		10		-10		67.0		0		76		0		0		0	
Inorganic Analytes										**Result (µg/L)**									
Aluminum	50	**370**		**1,210**		**396**	L	**3,510**		**83.3**	J,*	100	U	100	U	100	U	35.7	J
Antimony	3	4.0	U	4.0	U	4.0	U	4	U	4	U	4.0	U	1	J	4.0	U	4	U
Arsenic	0.2	2.0	U	2.0	U	2.0	U	**1.0**	J	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U,*
Barium	2,000	25.1		41.7		28.3		75.6		20.5		18.9	K	21.0		27.3		28.2	J
Beryllium	NA	2.8	U	NA		0.5	U	1.0	U	0.5	U,*	1.0	U,L	1.0	U	1.00	U	5.0	U
Cadmium	4	**575**		**1,070**		**1,350**		**1,150**		**1,290**	*	**846**		**1,440**		**459**		**640**	
Calcium	NA	54,700		NA		45,600	K	66,600		37,800		37,800		31,300		53,300		50,100	
Chromium	7,000	48.5		49.2		63.1		65.9		79.1	L,*	52.9		67.7		36.4		27.1	
Cobalt	NA	4.2	U	NA		2.0	U	1.4	J,L	1.2	J,K,*	1.0	U	0.6	J	3.00	U	0.4	J,*
Copper	NA	2.6	J	NA		1.9	J	6.1	K,*	3.0	U,*	6.0	U	6.0	U	1.86	J	1.10	J
Iron	NA	437		NA		220		3,330		101	K,*	16.1	J,K,*	30.9	J	23.9	J	21.2	J
Lead	5	2.0	U	2.0	U	2.0	U	4.1		2.0	U	2.0	U	2.0	U	3.0	U	15.6	*
Magnesium	NA	7,420		NA		8,010		16,400		6,550		5,240		5,100		7,410		7,270	
Manganese	NA	31.6	*	NA		63.8		312	*	12.9	K,*	6.4	K	22.7		1.22	L	8.7	J
Mercury	2	0.5	U	0.5	U,L	0.5	U	0.1	J	0.5	U	0.5	U	0.5	U,L	0.5	U	0.5	U
Nickel	57	18.4		27.0		28.9		26.5		21.0	K	15.3	K	21.6		7.99	K	11.3	J
Potassium	NA	3,400	J, K	NA		8,270	K,*	3,620	L,*	3,490	K	5,490	K	3,270		2,500		2,440	J
Selenium	NA	1.2	J	NA		4.0	U,L	2	J	2	J	2.0	J	2	J	1.2	J	1	J
Silver	0.1	1.7	U	2.0	U	4.0	U	4.0	U	**1.0**	J,K	4.0	U	4.0	U	5.00	U	10.0	U
Sodium	NA	43,400	K	NA		360,000		36,700		30,700		35,200		43,100		58,800		79,900	L
Thallium	0.5	2.0	U	2.0	U	4.0	U	2.0	U	1.0	U	1.0	U	1.0	U	2.0	U	1.0	U
Vanadium	NA	17.0	U	NA		10.1	J	3.2	J	20.0	U	10.0	U	10.0	U	5.00	U	0.3	J,K
Zinc	NA	174		NA		361		317		292		202		289		142		214	
Hexavalent Chromium	2.0	**47**		**43.2**		**63.7**		**49.8**	J,L	**59.7**	L	**33.4**	J,L	**58.8**	J,L	**38.2**	J,L	**28.1**	J,*
Cyanide	4	**6**	J	**26**		**31**		**44**	J	**96**		**30**		**80**		**55**		**32**	J,*
Volatile Organic Compounds										**Result (µg/L)**									
1,1,1-Trichloroethane	117	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	700	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Benzene	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	6	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	30	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
m- and p-Xylenes	59	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
o-Xylene	59	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	100	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl Chloride	0.2	1.0	U	1.0	UJ	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U,J

TABLE A-8
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2006 SAMPLING EVENTS FOR PZ11C

Sample Number:	Groundwater	PZ11C		PZ11C		PZ11C		PZ11C		PZ11C		PZ11C		PZ11C		PZ11C	
Sampling Date:	**Cleanup Goal**	11/21/02		05/28/03		11/17/03		05/19/04		11/30/04		06/07/05		09/13/05		03/22/06		09/20/06	
Groundwater Elevation:[1]	NA	592.61		591.13		588.66		593.20		593.01		593.12		589.48		594.13		594.50	
Well Bottom Elevation:[1]	NA	556.04		556.04		556.04		556.04		556.04		556.04		556.04		556.04		556.04	
Portion of Glacial Unit:	NA	Lower		Lower		Lower		Lower		Lower		Lower		Lower		Lower		Lower	
pH (standard units)	NA	8.03		7.95		8.21		8.39		7.73		7.53		7.63		7.66		7.70	
Conductivity (mS/cm)	NA	0.637		0.782		0.752		0.661		0.911		0.645		0.975		0.720		1.180	
Turbidity (NTU)	NA	2		10		-10		5.0		198		57		0		0		0	
Inorganic Analytes										**Result (µg/L)**									
Aluminum	50	**158**		**266**		44.2	L	**60.7**	J,L	**513**	*	**100**	U	100	U	100	U	28.8	J
Antimony	3	4.0	U	4.0	U	4.0	U	4	U	8	U	4.0	U	4	U	4.0	U	4	U
Arsenic	0.2	2.0	U	2.0	U	2.0	U	2.0	U	**0.9**	J	2.0	U	2.0	U	2.0	U	2.0	U
Barium	2,000	56.7		71.4		73.9		65.6		76.8		78.0	K	82.8		87.6		104	
Beryllium	NA	2.8	U	NA		0.5	U	1.0	U	0.5	U,*	1.0	U,L	1.0	U	1.00	U	5.0	U
Cadmium	4	**4.3**		**6.6**	K	2.3	K	1.7	K	**32.3**	K,*	1.5	J,K	1.2	J,K	1.07	J	0.8	J
Calcium	NA	51,900		NA		74,200	K	62,100		63,400		63,000		79,000		69,300		88,700	
Chromium	7,000	1.9		6.7		3.1		7.1	L	6.0	J,*	8.0		11.6		5.20		7	J,L
Cobalt	NA	4.2	U	NA		2.0	U	2.0	U	1.3	J,K,*	1.0	U	0.6	J	3.00	U	0.40	J,*
Copper	NA	1.6	J	NA		1.7	J	6.0	U,*	3.0	U,L,*	6.0	U	6.0	U	2.73	J	1.3	J,L
Iron	NA	154		NA		51.7		62.3		475	K,*	25.5	K,*	20.0	U,L	50.0	U	19.4	J
Lead	5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	3.0	U	2.0	U
Magnesium	NA	12,100		NA		20,700		17,800		15,200		14,600		19,000		18,800		22,800	
Manganese	NA	14.3	*	NA		2.1		3.7	*	29.9	K,*	1.4	K	0.4	J	1.0	U	1.6	J
Mercury	2	0.5	U	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U	0.5	U,L	0.5	U	0.5	U
Nickel	57	2.9		2.3	U	10.0	U	1.5	J	10.0	U	5.1	K	2.8		3.0	U	3.3	J,K
Potassium	NA	2,680	J, K	NA		7,530	K,*	1,300	J,L,*	2,590	K	6,450	K	3,170		2,970		3,380	J
Selenium	NA	4.0	U	NA		8.0	U,L	4	U	4	U	4.0	U	4	U	4.0	U	4	U
Silver	0.1	1.7	U	2.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	5.00	U	10.0	U
Sodium	NA	39,400	K	NA		709,000		37,100		89,300		65,700		63,600		63,700		83,900	
Thallium	0.5	2.0	U	2.0	U	4.0	U	2.0	U	1.0	U	1.0	U	1.0	U	2.0	U	1.0	U
Vanadium	NA	17.0	U	NA		17.2	J	10.0	U	20.0	U,L	10.0	U	10.0	U	5.00	U	50.0	U
Zinc	NA	13.7	J	NA		13.6	J	30.0	U	30.0	U	22.5	J	30.0	U	30.0	U	34.3	J
Hexavalent Chromium	2.0	**2.9**	J	0.6		**4.3**	J	**3.1**	J,L	**3.9**	L	**3.8**		**4.6**	J,L	**4.86**		**5.8**	J,*
Cyanide	4	8	U	8	U	8	U	8	UJ	5	U	5.0	U	3	J	10	U	**8**	K
Volatile Organic Compounds										**Result (µg/L)**									
1,1,1-Trichloroethane	117	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	700	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Benzene	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	6	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	30	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
m- and p-Xylenes	59	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
o-Xylene	59	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	100	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl Chloride	0.2	1.0	U	1.0	UJ	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U,J

TABLE A-9
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2006 SAMPLING EVENTS FOR PZ21

Sample Number:	Groundwater	PZ21		PZ21		PZ21		PZ21		PZ21		PZ21		PZ21		PZ21		PZ21	
Sampling Date:	Cleanup Goal	11/26/02		05/28/03		11/18/03		5.19/04		12/01/04		06/08/05		09/12/05		03/22/06		09/21/06	
Groundwater Elevation:[1]	NA	594.33		593.04		593.26		593.57		593.37		593.15		592.69		594.05		593.63	
Well Bottom Elevation:[1]	NA	590.70		590.70		590.70		590.70		590.70		590.70		590.70		590.70		590.70	
Portion of Glacial Unit:	NA	Upper		Upper		Upper		Upper		Upper		Upper		Upper		Upper		Upper	
pH (standard units)	NA	6.83		6.48		7.23		8.24		6.67		6.71		9.25		6.82		6.70	
Conductivity (mS/cm)	NA	0.579		0.937		0.740		0.681		0.540		0.353		0.779		0.393		0.480	
Turbidity (NTU)	NA	18		-10		-10		0.0		0		24		0		16.0		0.0	
Inorganic Analytes											Result (µg/L)								
Aluminum	50	**524**	*	**328**		48.2	J,L*	80.0	U	17.1	J,*	100	U	100	U	**172**		**122**	J
Antimony	3	4.0	U	4.0	U	4.0	U	4	U	4	U	4.0	U	4	U	4.0	U	1	J
Arsenic	0.2	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U,J
Barium	2,000	60.6		98.0		102		83.7		72.9		57.5	K	100		73.9		63.6	J
Beryllium	NA	2.8	U	NA		0.3	J,K*	1.0	U	0.2	J,K,*	1.0	U,L	1.0	U	1.00	U	5.0	U,L
Cadmium	4	**810**		**1,470**		**1,190**	L	**668**		**728**	*	**827**		**1,090**		**1,180**		**793**	
Calcium	NA	58,000		NA		69,200	L	56,000		57,300		46,300		60,200		46,200		45,300	
Chromium	7,000	20.1		16.8		12.6	*	12.3	L	9.8	K,*	11.8		11.7		27.2		38.5	
Cobalt	NA	4.2	U	NA		1.2	J,K	2.2	L	2.2	K,*	1.3		1.9		1.15	J	1.0	J,K,*
Copper	NA	18.5	L,*	NA		27.3	K	23.5	K,*	16.7	J,*	28.7		31.4		18.4		24.6	J
Iron	NA	444	*	NA		442		630		665	K,*	69.6	K	20.0	U	235		132	
Lead	5	2.0	U	2.0	U	0.6	J	2.0	U	2.0	U	0.5	J	2.0	U	3.0	U	2.0	U,J
Magnesium	NA	10,600		NA		12,000		10,600		8,590		6,830		10,100		7,750		7,690	
Manganese	NA	313		NA		379		271	*	136	*	35.3	K	66.3		45.5		37.0	
Mercury	2	0.5	U	0.5	U,L	0.5	U	0.5	UJ	0.5	U	0.5	U,J	0.5	U,L,J	0.5	U	0.5	U,J
Nickel	57	37.2		47.1		39.2		38.6		44.8	K	41.5	*	53.4	*	38.9		39.8	J
Potassium	NA	5,800	K	NA		11,400	K,*	7,590	L,*	7,770	K	8,800	K	7,480		5,190		5,660	
Selenium	NA	4.0	U	NA		4.0	U	4	U	4	U	4.0	U	4	U	4.0	U	4	U
Silver	0.1	1.7	U	2.0	U	4.0	U	4.0	U	**0.9**	J,K	4.0	U	4.0	U	5.00	U	10.0	U
Sodium	NA	19,700	K	NA		67,700	L	43,800		26,900		20,900		67,800.0		27,700		25,500	
Thallium	0.5	2.0	U	2.0	U	2.0	U	2.0	U	1.0	U	1.0	U	1.0	U	2.0	U	1.0	U
Vanadium	NA	17.0	U,L	NA		12.2	J	10.0	U	20.0	U	10.0	U	10.0	U	5.00	U	1.4	J,K
Zinc	NA	24.0	J	NA		30.1	L	30.4		25.3	J	42.7		35.4	K	90.2		68.1	
Hexavalent Chromium	2.0	10	U	10.0	U	10.0	U	10.0	U	1.0	U,L	1.0	U,J,L,*	10.0	U,J,L	**14.6**		**34.6**	J
Cyanide	4	**12**	J	**12**		**7**	J	**18**	J	**25**	*	**10**	J	**4**	J	**18**		**13**	J,*
Volatile Organic Compounds											Result (µg/L)								
1,1,1-Trichloroethane	117	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	700	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Benzene	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	6	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	30	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
m- and p-Xylenes	59	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
o-Xylene	59	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	100	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	4.3		1.0	U	1.0	U
Trichloroethene	3	1.0	U	**5.1**		1.0	U	1.8		2.1		**5.8**		0.8	J	**4.2**		**3.2**	
Vinyl Chloride	0.2	**1.1**		1.0	U	**2.6**	J	1.0	U,J	**3.0**		1.0	U	1.0	U	**0.7**	J	1.0	U,J

TABLE A-10
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2006 SAMPLING EVENTS FOR PZ13A

Sample Number:	Groundwater	PZ13A		PZ13A		PZ13A		PZ13A		PZ13A		PZ13A		PZ13A		PZ13A
Sampling Date:	Cleanup Goal	11/26/02		05/29/03		11/17/03		05/19/04		12/01/04		06/07/05		09/12/05		03/22/06		09/21/06
Groundwater Elevation:[1]	NA	592.37		592.73		592.65		593.43		593.04		593.01		592.1		593.95		593.93
Well Bottom Elevation:[1]	NA	586.18		586.18		586.18		586.18		586.18		586.18		586.18		586.18		586.18
Portion of Glacial Unit:	NA	Upper		Upper		Upper		Upper		Upper		Upper		Upper		Upper		Upper
pH (standard units)	NA	6.88		7.56		7.78		9.00		7.39		8.34		7.06		7.19		--
Conductivity (mS/cm)	NA	1.38		2.200		1.870		1.320		1.360		0.781		0.930		1.410		--
Turbidity (NTU)	NA	10		-10		0		861.0		344		0		38		0		--
Inorganic Analytes								**Result (µg/L)**										
Aluminum	50	**48,800**	*	**74.3**		**53.3**	L	**11,200**		**10,500**	*	100	U	**146**		100	U	NS
Antimony	3	1.3	J	4.0	U	4.0	U	4	U	4	U	4.0	U	4	U	4	U	NS
Arsenic	0.2	**31.8**		2.0	U	6.0	U	**3.8**		**7.1**		2.0	U	2.0	U	**0.5**	J	NS
Barium	2,000	689		182		174		159		304		123	K	179		129		NS
Beryllium	NA	4.3		NA		0.5	U	0.3	J	0.8	K,*	1.0	U,L	1.0	U	1.00	U	NS
Cadmium	4	**9,580**		**439**		**285**		**929**		**1,990**	*	**512**		**412**		**134**		NS
Calcium	NA	393,000		NA		212,000	K	119,000		146,000		58,100		89,700		44,100		NS
Chromium	7,000	2,260		7.3		10.1		253		414	L,*	13.9		26.9		10.4		NS
Cobalt	NA	17.5		NA		2.0	U	4.4	K	8.7	K,*	2.4		1.5		1.33	J	NS
Copper	NA	384	*	NA		25.2		71.4	K,*	145	K,*	9.4		14.9		15.8		NS
Iron	NA	78,400	*	NA		101		9,640		15,400	*	12.2	J,K,*	118	K	36.2	J	NS
Lead	5	**85.7**		2.0	U	6.0	U	**7.4**		**15.5**		0.8	J	2.0	U	3.0	U	NS
Magnesium	NA	115,000		NA		140,000		100,000		82,500		23,100		23,200		54,800		NS
Manganese	NA	3,510		NA		37.0		1,000.0	*	3,690	*	31.6	K	449		5.54		NS
Mercury	2	0.2	J	0.5	U,L	0.1	J	0.1	J	0.5	U	0.5	U	0.5	U,L,J	0.5	U	NS
Nickel	57	**1,120**		**103**		**103**		**218**	*	**438**	K	**133**		**104**		42.6		NS
Potassium	NA	26,700		NA		32,200	K,*	19,800	*	20,400	K	26,600	K	17,100		19,600		NS
Selenium	NA	40.0	U	NA		40.0	U,L	12	U	3	J	4.0	U	4	U	1.8	J	NS
Silver	0.1	1.7	U	2.0	U	**1.2**	J	4.0	U	**1.1**	J,K	4.0	U	4.0	U	5.00	U	NS
Sodium	NA	74,300	K	NA		946,000		50,600		70,600		66,700		93,100		115,000		NS
Thallium	0.5	20.0	U	2.0	U	10.0	U	2.0	U	0.5	J	0.3	J	1.0	U	2.0	U	NS
Vanadium	NA	68.5	L	NA		29.0	J	12.6		11.3	J	10.0	U	1.6	J	5.00	U	NS
Zinc	NA	3,880		NA		137		476		817		198		163		52.2	J	NS
Hexavalent Chromium	2.0	**7.9**	J	**4.7**	J,L	**8.7**	J	**12.7**		**3.6**	L	**3.6**	J,L	10.0	U,J,L	**7.28**		NS
Cyanide	4	**306**	J	**122**		**125**		**106**	J	**206**	*	**8**		**50**	J	**59**		NS
Volatile Organic Compounds								**Result (µg/L)**										
1,1,1-Trichloroethane	117	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	NS
1,1-Dichloroethane	700	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NS
1,2-Dichloroethane	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NS
Benzene	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NS
Chloroform	6	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NS
Ethylbenzene	30	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	NS
m- and p-Xylenes	59	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	NS
o-Xylene	59	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NS
Toluene	100	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NS
Trichloroethene	3	2.5		2.0		1.0	U	0.58	J	1.0	U	**13.0**		2.2		**9.6**		NS
Vinyl Chloride	0.2	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	U	J	NS

TABLE A-11
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2006 SAMPLING EVENTS FOR PZ13B

Sample Number:	Groundwater	PZ13B		PZ13B		PZ13B		PZ13B		PZ13B		PZ13B		PZ13B		PZ13B		PZ13B-D	
Sampling Date:	**Cleanup Goal**	11/26/02		05/29/03		11/17/03		05/19/04		12/01/04		06/07/05		09/12/05		03/22/06		09/21/06		09/21/06	
Groundwater Elevation:[1]	NA	592.28		592.70		579.45		593.41		592.88		592.03		592.19		593.9		594.31		594.31	
Well Bottom Elevation:[1]	NA	571.77		571.77		571.77		571.77		571.77		571.77		571.77		571.77		571.77		571.77	
Portion of Glacial Unit:	NA	Middle		Middle		Middle		Middle		Middle		Middle		Middle		Middle		Middle		Middle	
pH (standard units)	NA	6.77		7.53		8		9.44		7.79		7.50		7.19		6.59		7.24		7.24	
Conductivity (mS/cm)	NA	0.794		0.851		0.993		0.913		1.020		0.913		0.906		0.799		1.590		1.590	
Turbidity (NTU)	NA	4		-10		-10		10.0		318		0		37		2		0		0	
Inorganic Analytes										**Result (µg/L)**											
Aluminum	50	**326**	*	**1,770**		**239**	L	**357**		**1,580**	*	100	U	**1,610**		100	U	200	U	**58.0**	J
Antimony	3	4.0	U	4.0	U	4.0	U	4	U	8	U	4.0	U	4	U	4.0	U	2	J	4	U
Arsenic	0.2	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	**0.5**	J	**0.7**	J	**0.9**	J,*	**0.9**	J,*
Barium	2,000	77.1		21.4		79.6		18.8		34.0		29.7	K	46.5		28.8		27.5	J	27.7	J
Beryllium	NA	2.8	U	NA		0.5	U	1.0	U	0.5	J,K,*	1.0	U,L	1.0	U	1.00	U	5.0	U,L	5.0	U,L
Cadmium	4	**47.6**		**1,380**		**29.8**		**2,210**		**973**	*	**2,260**		**1,830**		**2,260**		**1,420**		**1,400**	
Calcium	NA	73,300		NA		83,000	K	73,600		94,100		90,900		95,300		72,700		88,500		88,000	
Chromium	7,000	27.4		24.4		25.0		14.2		20.5	L,*	7.3		42.1		5.59		2.70	J	3.3	J
Cobalt	NA	4.2	U	NA		2.0	U	0.9	J,K	2.2	K,*	1.9		1.5		1.51	J	0.8	J,K,*	1.1	J,K,*
Copper	NA	4.4	U,*	NA		4.4		6.0	U,*	3.0	U,L,*	2.0	J	5.7	J	3.99	J	2.3	J	2.6	J
Iron	NA	322	*	NA		193		210		1,160	K,*	21.2	K,*	1,500.0		50.0	U	62.7	J	93.4	J
Lead	5	2.0	U	0.7	J	2.0	U	2.0	U	1.1	J	2.0	U	2.4	J	3.0	U	2.0	U,*	2.0	U,*
Magnesium	NA	18,300		NA		18,600		19,500		19,500		14,600		17,700		11,800		17,500		17,500	
Manganese	NA	11.8		NA		9.1		187	*	445	*	688	K	370		214		589		599	
Mercury	2	0.5	U	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U	0.5	U,L,J	0.5	U	0.5	U,J	0.5	U,J
Nickel	57	6.9		**102**		26.9		**141**	*	49.7	K	179		**120**		**169**		**58.9**		**58.5**	
Potassium	NA	2,950	K	NA		8,320	K,*	5,550	K,*	4,810	K	6,380	K	2,780		4,340		3,600	J	3,620	J
Selenium	NA	4.0	U	NA		8.0	U,L	4	U	4	U	4.0	U	4	U	4.0	U	4	U	4	U
Silver	0.1	1.7	U	2.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	5.00	U	10.0	U	10.0	U
Sodium	NA	83,900	K	NA		779,000		66,100		78,900		93,000		61,800		92,100		151,000		148,000	
Thallium	0.5	2.0	U	2.0	U	4.0	U	2.0	U	2.0	U	2.0	U	1.0	U	2.0	U	1.0	U	1.0	U
Vanadium	NA	17.0	U,L	NA		20.3	J	10.0	U	20.0	U	10.0	U	2.2	J	5.00	U	0.5	J,K	0.3	J,K
Zinc	NA	28.2	J	NA		31.2		1,800		522		2,150		1,180		2,240		819		835	
Hexavalent Chromium	2.0	**18**		10.0	U,J,L	**20.2**		10.0	U	1.0	U,L	1.0	U,L,J	10.0	U,J,L	10.0	U	10.0	U,J,L	10.0	U,J,L
Cyanide	4	**32**	J	**5**	J	**21**		**4**	**J**	3	J	2.0	U	2	J	10	U	3	J,*	**4**	**J,K**
Volatile Organic Compounds										**Result (µg/L)**											
1,1,1-Trichloroethane	117	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	700	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Benzene	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	6	5.6		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	30	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	**72.0**		**19**		**18**	
m- and p-Xylenes	59	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	**110.0**		**1.8**	J	**1.8**	J
o-Xylene	59	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	**47.0**		1.0	U	1.0	U
Toluene	100	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.2		1.0	U	1.0	U
Trichloroethene	3	1.0	U	1.0	U	1.0	U	0.61	J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl Chloride	0.2	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U,J	1.0	U,J

TABLE A-12
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2006 SAMPLING EVENTS FOR PZ13C

Sample Number:	Groundwater	PZ13C	PZ13C	PZ13C	PZ13C-D	PZ13C	PZ13C	PZ13C	PZ13C-D	PZ13C	PZ13C	PZ13C-D	PZ13C
Sampling Date:	**Cleanup Goal**	11/26/02	05/29/03	11/17/03	11/17/03	05/19/04	12/01/04	06/07/05	06/07/05	09/12/05	03/22/06	03/22/06	09/21/06
Groundwater Elevation:[1]	NA	592.19	592.82	570.32	570.32	593.27	592.67	592.92	592.92	591.85	593.67	593.67	594.38
Well Bottom Elevation [1]	NA	552.86	552.86	552.86	552.86	552.86	552.86	552.86	552.86	552.86	552.86	552.86	552.86
Portion of Glacial Unit	NA	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower
pH (standard units)	NA	7.62	8.12	8.15	8.15	7.11	8.05	7.60	7.60	7.68	7.42	7.42	7.51
Conductivity (mS/cm)	NA	0.880	0.900	0.508	0.508	0.886	0.675	1.170	1.170	0.962	1.340	1.340	0.789
Turbidity (NTU)	NA	5	-10	-10	-10	8.0	16	0	0	0	1	1	0
Inorganic Analytes							**Result (µg/L)**						
Aluminum	50	**137** *	**493**	**126** L	**124** L	**106**	22.3 J,*	100 U	100 U	100 U	100 J	100 U	31.7 J
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4 U	4 U	4 U	4.0 U	4 U	4.0 UJ	4.0 U	4 U
Arsenic	0.2	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**1.0 J**	2.0 U	2.0 U	2.0 U	2.0 UJ	2.0 U	2.0 U,*
Barium	2,000	14.2	66.4	8.8	8.2	72.6	35.4	80.7 K	80.0 K	47.2	56.3	55.5	62.8 J
Beryllium	NA	2.8 U	NA	0.5 U	0.5 U	1.0 U	0.1 J,K,*	1.0 U,L	1.0 U,L	1.0 U	1.00 UJ	1.00 U	5.0 U,L
Cadmium	4	**1,680**	**62.4**	**661**	**657**	**19.4**	**26.0 K,***	**26.7**	**26.7**	**36.5**	**38.4**	**35.8**	**16.3**
Calcium	NA	62,200	NA	64,600 K	63,600 K	69,800	57,600	95,900	97,100	73,600	80,000	80,500	72,300
Chromium	7,000	3.0	27.9	3.8	2.9	45.4	14.2 L,*	43.7	45.1	32.7	44.1	41.9	37.7
Cobalt	NA	4.2 U	NA	2.0 U	2.0 U	0.5 J,K	1.0 J,K,*	0.6 J	1.0 U	0.3	0.949 J	3.00 U	5.0 U,*
Copper	NA	2.0 L,*,J	NA	2.0 J	1.1 J	4.5 J,K,*	3.0 U,L,*	4.4 J	4.5 J	5.1 J	10.0	8.70	4.8 J,*
Iron	NA	107 *	NA	118	108	68.0	51.5 K,*	24.8 K,*	23.5 K,*	6.5 J	38.1 J	50.0 U	45.9 J
Lead	5	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	3.0 UJ	3.0 U	2.0 U,*
Magnesium	NA	13,400	NA	11,700	10,500	15,800	15,700	20,000	19,900	15,000	18,300	18,100	16,300
Manganese	NA	247	NA	232	239	5.9 *	8.9 K,*	11.0 K	11.2 K	60.0	0.689 J	0.565 J	3.8 J
Mercury	2	0.5 U	0.5 U,L	0.2 J	0.2 J	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U,L,J	0.5 UJ	0.5 U	0.5 U,J
Nickel	57	**159**	6.6 L	40.1	36.4	30.3 *	24.8 K	44.4	45.1	43.2	39.9	37.6	20.8 J
Potassium	NA	4,230 K	NA	6,560 K,*	6,330 K,*	5,540 K,*	2,140 K	8,040 K	8,050 K	4,060.0	3,360	3,320	5,190
Selenium	NA	4.0 U	NA	8.0 U,L	8.0 U,L	4 U	4 U	1 J	1.0 J	4 J	4.0 UJ	4.0 U	4 U
Silver	0.1	1.7 U	2.0 U	4.0 U	4.0 U	4.0 U	**1.3 J,K**	4.0 U	4.0 U	4.0 U	5.00 UJ	5.00 U	10.0 U
Sodium	NA	86,300 K	NA	837,000	871,000	71,000	44,200	107,000	109,000	70,600	137,000	139,000	90,400
Thallium	0.5	2.0 U	2.0 U	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 UJ	2.0 U	1.0 U
Vanadium	NA	17.0 U,L	NA	17.0 J	11.7 J	10.0 U	20.0 U	10.0 U	10.0 U	10.0 U	5.00 UJ	5.00 U	0.5 K,J
Zinc	NA	1,220	NA	457	452	10.4 J,K	13.5 J	27.8 J	24.7 J	18.4 J,K	15.3 J	15.7 J	40.6 J
Hexavalent Chromium	2.0	10 U	**18.1** J,L	**3.2 J**	**3.5** J	**34.5**	**14.4 L**	**26.6**	**26.9**	**24.2 J,L**	**37.7**	**37.2**	**40.3 J**
Cyanide	4	**8** J	**24**	8 U	8 U	**28 J**	**20** *	**18**	**8**	**24 J**	**25**	**25**	**64 J**
Volatile Organic Compounds							**Result (µg/L)**						
1,1,1-Trichloroethane	117	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U,J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	700	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	0.4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzene	1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform	6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.54 J
Ethylbenzene	30	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U,J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
m- and p-Xylenes	59	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
o-Xylene	59	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	100	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U,J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl Chloride	0.2	1.0 U	1.0 U	1.0 U,J	1.0 U,J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U,J	1.0 U	1.0 U,J

TABLE A-13
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2006 SAMPLING EVENTS FOR PZ05C

Sample Number:	Groundwater	PZ05C		PZ05C-D		PZ05C		PZ05C		PZ05C		PZ05C-D		PZ05C		PZ05C		PZ05C		PZ05C	
Sampling Date:	**Cleanup Goal**	11/26/02		11/26/02		05/29/03		11/17/03		05/20/04		12/01/04		12/01/04		06/09/05		09/12/05		3/23/2006		9/21/2006	
Groundwater Elevation:[1]	NA	591.92		591.92		592.57		580.53		593.04		592.38		592.38		592.92		591.43		593.30		594.41	
Well Bottom Elevation:[1]	NA	538.07		538.07		538.07		538.07		538.07		538.07		538.07		538.07		538.07		538.07		538.07	
Portion of Glacial Unit:	NA	Lower		Lower		Lower		Lower		Lower		Lower		Lower		Lower		Lower		Lower		Lower	
pH (standard units)	NA	7.98		7.98		8.01		8.27		7.93		8.18		8.18		6.51		7.93		9.18		7.72	
Conductivity (mS/cm)	NA	0.742		0.742		0.651		0.672		0.668		0.760		0.760		--		0.866		0.777		0.472	
Turbidity (NTU)	NA	0		0		-10		-10		1.0		6		6		--		0		4		0	
Inorganic Analytes																							
Aluminum	50	**53.4**	*	45.5	*	12.0	J	25.3	J,L	**61.3**	**J**	40.0	U,L,*	25.4	J,*	**100**	U	100	U	100	U	200	U
Antimony	3	4.0	U	4.0	U	4.0	U	4.0	U	4	U	8	U	4	U	4.0	U	4	U	4.0	U	4	U
Arsenic	0.2	2.0	U	2.0	U	2.0	U	**0.6**	J	**0.6**	**J**	**1.8**	**J**	**0.6**	**J**	**0.5**	**J**	**0.5**	**J**	**0.6**	**J**	**0.9**	**J,***
Barium	2,000	62.8		59.9		55.5		66.7		69.2		79.0		79.9		84.9	K	92.2		102		62.6	J
Beryllium	NA	2.8	U	2.8	U	NA		0.5	U	1.0	U	0.2	J,K,*	0.2	J,K,*	1.0	U,L	1.0	U	1.00	U	5.0	U,L
Cadmium	4	3.2		1.2		1.3	U	1.1	J,K	1.0	U	**9.4**	**J,***	**8.2**	**J,***	0.5	J,K	2.0	U	2.00	U	5.0	U
Calcium	NA	59,500		58,200		NA		58,000		56,900		62,300		62,500		61,900	K	66,500		65,300		50,500	
Chromium	7,000	0.9	U	0.9	U	1.3	U,L	4.3	J	11.7		3.6	J,*	3.5	J,*	5.1	J,K	17.8		5.11		0.4	J
Cobalt	NA	4.2	U	4.2	U	NA		2.0	U	0.4	J,K	1.4	J,K,*	1.4	J,K,*	0.4	J	0.4	J	3.00	U	50.0	U,*
Copper	NA	4.4	U,*	4.4	U,*	NA		0.7	J,L	6.0	U,*	3.0	U,L,*	3.0	U,L,*	6.0	U	6.0	U	2.18	J	25.0	J
Iron	NA	18.9	J,*	16.8	J,*	NA		27.8	J	36.3	L	37.8	K,*	42.3	K,*	92.3	K,*	17.5	J	88.7		100	J
Lead	5	2.0	U	1.4	J	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	3.0	U	0.6	J,*
Magnesium	NA	16,700		16,100		NA		17,100		16,800		17,500		17,800		15,700		18,800		18,700		14,800	
Manganese	NA	10.1		7.7	J	NA		7.0		25.9	*	7.7	K,*	8.8	K,*	220	K	38.4		47.6		10.4	J
Mercury	2	0.5	U	0.5	U	0.5	U	0.5	U	0.1	J	0.5	U	0.5	U	4.8	K	0.5	J,L	0.5	U	0.5	U,J
Nickel	57	1.3	J	1.0	J	2.3	U	10.0	U	2.9	J,K,*	10.0	U	10.0	U	4.8	K	2.0	J,K	3.00	U	40.0	U
Potassium	NA	1,550	K	1,440	K	NA		1,880	J,K*	2,830	K,*	1,480	K	1,480	K	5,750	K	1,870	J	1,990		1,220	J
Selenium	NA	4.0	U	4.0	U	NA		4.0	U	4	U	4	U	4	U	4.0	U	4	U	4.0	U	4	U
Silver	0.1	1.7	U	1.7	U	2.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	5.00	U	10.0	U
Sodium	NA	32,000	K	31,300	K	NA		39,000	L	40,800		44,700		44,600		48,100		54,800		52,800		30,100	
Thallium	0.5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	1.0	U
Vanadium	NA	17.0	U,L	17.0	U,L	NA		6.3	J	10.0	U	20.0	U	20.0	U	10.0	U	10.0	U	5.00	U	1.1	J,K
Zinc	NA	18.9	J	13.7	J	NA		30.0	U	30.0	U	30.0	U	8.1	J	14.1	J	30.0	U	30.0	U,L	23.6	J
Hexavalent Chromium	2.0	10	U	10	U	10.0	U,J,L	**5.1**	J	**2.5**	**J,L**	**2.3**	L	1.0	U,L	1.0	U,L,J	**8.5**	**J,L**	**4.2**		10.0	U,J,L
Cyanide	4	8	U	8	U	8	U	**6**	J	**6**	**J**	5	U	4	J	**11.0**	**J**	**11**	**J**	**11**		2	J,K
Volatile Organic Compounds																							
1,1,1-Trichloroethane	117	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	700	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.4	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Benzene	1	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	6	1.0	UJ	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	30	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
m- and p-Xylenes	59	2.0	UJ	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
o-Xylene	59	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	100	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	3	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl Chloride	0.2	1.0	UJ	1.0	UJ	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U,J

TABLE A-14
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2006 SAMPLING EVENTS FOR PZ06A

Sample Number:	Groundwater	PZ06A		PZ06A-D		PZ06A		PZ06A		PZ06A		PZ06A		PZ06A		PZ06A		PZ06A	
Sampling Date:	Cleanup Goal	11/26/02		11/26/02		05/29/03		11/17/03		05/19/04		12/01/04		06/08/05		09/12/05		3/23/2006		9/20/2006	
Groundwater Elevation:[1]	NA	593.05		593.05		593.06		598.82		593.80		593.40		593.32		592.78		594.12		594.05	
Well Bottom Elevation:[1]	NA	578.31		578.31		578.31		578.31		578.31		578.31		578.31		578.31		578.31		578.31	
Portion of Glacial Unit:	NA	Middle		Middle		Middle		Middle		Middle		Middle		Middle		Middle		Middle		Middle	
pH (standard units)	NA	7.58		7.58		8.02		8.32		8.64		7.88		7.30		7.69		7.82		7.30	
Conductivity (mS/cm)	NA	0.598		0.598		0.761		0.541		1.170		1.02		--		0.761		0.608		0.534	
Turbidity (NTU)	NA	1		1		-10		-10		2.0		0		--		0		0		0	
Inorganic Analytes										Result (µg/L)											
Aluminum	50	**110**	*	**102**	*	31.9		20.0	J,L	80.0	U	3,250	*	100	U	100	U	100	U	200	U
Antimony	3	4.0	U	4.0	U	4.0	U	4.0	U	4	U	8	U	4.0	U	4	U	4.0	U	4	U
Arsenic	0.2	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	**4.7**		2.0	U	2.0	U	2.0	U	2.0	U,*
Barium	2,000	70.8		69.8		83.9		59.2		134		243		112	K	102		93.0		82.7	J
Beryllium	NA	2.8	U	2.8	U	NA		0.2	J,K	1.0	U	0.8	K,*	1.0	U,L	1.0	U	1.00	U	5.0	U
Cadmium	4	1.0	J	1.0	U	**12.4**		1.9	K,J	3.3		**29.5**	**K,***	2.9	K	**10.0**		2.93	J	3.70	J
Calcium	NA	54,000		53,000		NA		51,900		79,000		55,700		73,600	K	70,400		75,200		70,900	
Chromium	7,000	4.3		4.2		4.6	L	3.3	J	16.1		68.6	L,*	12.5		12.4		5.42		4.3	J
Cobalt	NA	4.2	U	4.2	U	NA		2.0	U	2.0	U	7.0	K,*	1.0	U	1.0	U	3.00	U	50.0	U,*
Copper	NA	4.4	U,*	4.4	U,*	NA		2.6	J,L	9.4	K,*	99.9	K,*	6.0	U	6.0	U	2.49	J	1.6	J,*
Iron	NA	81.2	*	71.7	*	NA		30.0	U	30.0	U	20,400	*	20.0	U	20.0	U	50.0	U	100	U
Lead	5	2.0	U	2.0	U	2.0	U	4.0	U	2.0	U	**11.9**		1.0	J	2.0	U	3.0	U	2.0	U,*
Magnesium	NA	11,900		11,700		NA		15,200		21,100		11,500		15,800		17,800		22,600		19,800	
Manganese	NA	8.2	J	6.8	J	NA		0.9	J	0.5	J,L,*	359	*	0.2	J,K	1.0	U	0.914	J	2.5	J
Mercury	2	0.5	U	0.5	U	0.5	U,L	0.2	J	0.5	UJ	0.5	U	0.5	U,J	0.5	U,L,J	0.5	U	0.5	U
Nickel	57	5.6		5.4		15.1		3.9	J	12.7	K,*	120	K	10.4	K,*	10.3	K,*	6.59	K	6.8	J
Potassium	NA	2,710	K	2,670	K	NA		7,160	K,*	2,350	K,*	4,830	K	8,380	K	4,710	K	1,900		1,430	J
Selenium	NA	4.0	U	4.0	U	NA		8.0	U,L	4	U	4	U	4.0	U	4	U	4.0	U	4	U
Silver	0.1	1.7	U	1.7	U	2.0	U	4.0	U	4.0	U	**1.9**	**J,K**	4.0	U	4.0	U	5.00	U	10.0	U
Sodium	NA	21,600	K	21,200	K	NA		838,000		125,000		152,000		35,500		35,900		27,800		23,300	
Thallium	0.5	2.0	U	2.0	U	2.0	U	4.0	U	2.0	U	0.3	J	1.0	U	1.0	U	2.0	U	1.0	U
Vanadium	NA	17.0	U,L	17.0	U,L	NA		10.1	J	10.0	U	8.1	J	10.0	U	10.0	U	5.00	U	0.9	J,K
Zinc	NA	36.0	U	36.0	U	NA		30.0	U	30.0	U	58.4		11.5	J	30.0	U	30.0	U,L	29.0	
Hexavalent Chromium	2.0	**5.1**	J	**6.2**	J,L	**5.5**	J,L	**3.9**	J	**6.2**		**7.7**	**L**	**15.2**	**J,L,***	**3.6**	**J,L**	**5.36**	**J**	**3.5**	**J,***
Cyanide	4	8	U	8	U	8	U	8	U	8	UJ	5	U	5	U,J	5	U,J	10	U	5	U,J,*
Volatile Organic Compounds										Result (µg/L)											
1,1,1-Trichloroethane	117	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	700	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Benzene	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	6	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	30	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
m- and p-Xylenes	59	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
o-Xylene	59	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	100	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl Chloride	0.2	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U,J

TABLE A-15
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2006 SAMPLING EVENTS FOR PZ06B

Sample Number:	Groundwater	PZ06B		PZ06B		PZ06B		PZ06B		PZ06B-D		PZ06B		PZ06B		PZ06B		PZ06B		PZ06B	
Sampling Date:	**Cleanup Goal**	11/26/02		05/29/03		11/17/03		05/19/04		05/19/04		12/01/04		06/08/05		09/12/05		3/23/2006		9/20/2006	
Groundwater Elevation:[1]	NA	592.85		593.06		592.68		593.76		593.76		593.38		593.31		592.72		594.09		594.05	
Well Bottom Elevation:[1]	NA	557.81		557.81		557.81		557.81		557.81		557.81		557.81		557.81		557.81		557.81	
Portion of Glacial Unit:	NA	Lower		Lower		Lower		Lower		Lower		Lower		Lower		Lower		Lower		Lower	
pH (standard units)	NA	7.68		8.21		8.34		8.86		8.86		8.32		7.18		8.19		7.91		7.13	
Conductivity (mS/cm)	NA	0.752		0.755		0.586		0.527		0.527		0.412		--		0.468		0.627		0.660	
Turbidity (NTL)	NA	0		-10		-10		1.0		1.0		0		--		0		0		0	
Inorganic Analytes											**Result (µg/L)**										
Aluminum	50	**50.7**	*	15.9	J	17.2	J,L	80.0	U	80.0	U	20.4	J,*	**100**	U	**60.1**	J	100	U	200	U
Antimony	3	4.0	U	4.0	U	4.0	U	4	U	4	U	4	U	4.0	U	4	U	4.0	U	4	U
Arsenic	0.2	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U,*
Barium	2,000	70.4		71.2		63.5		58.7		57.0		46.8		86.6	K	47.8		88.9		103	J
Beryllium	NA	2.8	U	NA		0.5	U	1.0	U	1.0	U	0.4	J,K,*	1.0	U,L	1.0	U	1.00	U	5.0	U,L
Cadmium	4	1.0	U	1.3	U	1.2	K,J	1.0	U	1.0	U	**5.9**	**J,***	0.5	J,K	2.0	U	2.00	U	5.0	U
Calcium	NA	63,300		NA		55,900		45,900		46,000		39,600		69,700	K	43,000		72,400		77,800	
Chromium	7,000	0.9	U	1.3	U,L	0.8	J	6.0		6.5		0.9	J,*	3.5	J	3.1	J	5.00	U	0.5	J
Cobalt	NA	4.2	U	NA		0.7	J,K	0.9	J,K	1.1	J,K	1.3	J,K,*	0.3	J	0.3	J	3.00	U	50.0	U,*
Copper	NA	4.4	U,*	NA		4.2	L	2.6	J,K,*	3.6	J,K,*	3.0	U,L,*	6.0	U	6.0	U	3.14	J	25.0	U
Iron	NA	42.0	U,*	NA		13.5	J	7.3	J,L	5.3	J,L	49.0	K,*	12.9	J,K	26.2	J	50.0	U	100.0	U
Lead	5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	3.0	U	2.0	U,*
Magnesium	NA	18,200		NA		16,300		13,900		13,600		11,200		18,500		12,600		21,500		23,500	
Manganese	NA	8.6	U	NA		2.6		1.9	L,*	1.5	L,*	3.1	K,*	1.2	K	7.0		2.33		1.9	J
Mercury	2	0.5	U	0.5	U,L	0.2	J	0.5	UJ	0.5	UJ	0.5	U	0.5	U,J	0.5	U,L,J	0.5	U	0.5	U
Nickel	57	1.2	J	2.3	U	10.0	U	3.5	J,K,*	3.2	J,K,*	10.0	U	4.0	K,*	1.2	J,K	3.00	U	40.0	UJ
Potassium	NA	1,360	K	NA		6,630	K,*	1,630	J,K,*	1,680	J,K,*	1,060	K	5,620	K	967	J	1,260		1,420	J
Selenium	NA	4.0	U	NA		8.0	U,L	4	U	4	U	4	U	4.0	U	4	U	4.0	U	4	UJ
Silver	0.1	1.7	U	2.0	U	4.0	U	4.0	U	4.0	U	**1.0**	**J,K**	4.0	U	4.0	U	5.0	U	10.0	U
Sodium	NA	28,300	K	NA		792,000		25,600		25,700		16,400		26,800		18,500		29,300		36,500	
Thallium	0.5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	1.0	U	1.0	U	1.0	U	2.0	U	1.0	U
Vanadium	NA	17.0	U,L	NA		9.8	J	10.0	U	10.0	U	20.0	U	10.0	U	10.0	U	5.00	U	1.3	J,K
Zinc	NA	36.0	U	NA		30.0	U	30.0	U	30.0	U	30.0	U	12.4	J	30.0	U	30.0	U,L	30.8	J
Hexavalent Chromium	2.0	10	U	10.0	UJ,L	10.0	U	10.0	U	10.0	U	1.0	U,L	1.0	U,L,J	10.0	U,J,L	10.0	U,J	10.0	U,J,L
Cyanide	4	8	U	8	U	8	U	8	UJ	8	UJ	5	U	5.0	U,J	5	U,J	10	U	5	U,J,*
Volatile Organic Compounds											**Result (µg/L)**										
1,1,1-Trichloroethane	17	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	700	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Benzene	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	6	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	30	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
m- and p-Xylenes	59	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
o-Xylene	59	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	100	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	3	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl Chloride	0.2	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U,*

TABLE A-16
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2006 SAMPLING EVENTS FOR PZ06C

Sample Number:	Groundwater	PZ06C		PZ06C		PZ06C-D		PZ06C		PZ06C-D		PZ06C		PZ06C		PZ06C-D		PZ06C		PZ06C		PZ06C		PZ06C-D		PZ06C	
Sampling Date:	**Cleanup Goal**	11/26/02		05/29/03		05/29/03		11/17/03		11/17/03		05/19/04		12/01/04		06/09/05		06/09/05		09/12/05		3/23/2006		3/23/2006		9/21/2006	
Groundwater Elevation:	NA	592.99		593.01		593.01		593.41		593.41		593.76		593.32		593.31		593.31		592.66		594.09		594.09		594.18	
Well Bottom Elevation	NA	537.67		537.67		537.67		537.67		537.67		537.67		537.67		537.67		537.67		537.67		537.67		537.67		537.67	
Portion of Glacial Unit:	NA	Lower		Lower		Lower		Lower		Lower		Lower		Lower		Lower		Lower		Lower		Lower		Lower		Lower	
pH (standard units)	NA	7.73		8.30		8.30		8.41		8.41		7.70		8.24		5.43		5.43		8.24		7.95		7.95		7.35	
Conductivity (mS/cm)	NA	0.399		0.488		0.488		0.481		0.481		0.388		0.339		0.420		0.420		0.484		0.363		0.363		0.410	
Turbidity (NTU)	NA	0		-10		-10		-10		-10		1.0		0		6		6		37		2		2		0	
Inorganic Analytes																											
Aluminum	50	26.3	J,*	8.8	J	8.0	J	22.2	J,L	21.5	J,L	80.0	U	25.3	J,*	100	U	**100**	U	**100**	U	100	U	100	U	200	U
Antimony	3	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4	U	4	U	4	U	4.0	U	4	U	4.0	U	4.0	U	4	U
Arsenic	0.2	**5.9**		**5.8**		**5.8**		**4.7**		**4.6**		**4.2**		**4.1**		**5.0**		**4.4**		**3.5**		**4.5**		**4.6**		**5.5**	*
Barium	2,000	44.9		56.2		56.3		65.7		67.6		53.2		50.1		74.5	K	79.2	K	71.9		71.6		69.2		44.9	J
Beryllium	NA	2.8	U	NA		NA		0.3	J,K	0.3	J,K	1.0	U	0.4	J,K,*	1.0	U,L	1.0	U,L	1.0	U	1.00	U	1.00	U	5.0	U,L
Cadmium	4	1.0	U	2.3	K	1.3	U	1.5	K,J	0.5	K,J	1.0	U	**12.1**	**J,***	0.4	J,K	2.0	U	2.0	U	2.00	U	2.00	U	5.0	L
Calcium	NA	36,400		NA		NA		45,700		45,300		37,100		31,700		46,500	K	48,700	K	47,800		43,700		43,600		53,200	
Chromium	7,000	0.9	U	1.3	U,L	1.3	U,L	2.0	U	1.2	J	5.1		2.0	U,*	6.0	U	2.1	J,K	3.4	J	5.00	U	5.00	U	0.4	J
Cobalt	NA	4.2	U	NA		NA		2.0	U	0.5	J,K	2.0	U	1.4	J,K,*	1.0	U	1.0	U	0.4	J	3.00	U	3.00	U	50.0	U,*
Copper	NA	4.4	U,*	NA		NA		3.0	U,K	1.1	J,L	6.0	U,*	3.0	U,L,*	6.0	U	6.0	U	6.0	U	5.00	U	5.00	U	25.0	
Iron	NA	136	*	NA		NA		180		187		110		188	K,*	204	K,*	212	K,*	213		203		197		213	
Lead	5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	0.8	J	3.0	U	3.0	U	2.0	U,*
Magnesium	NA	9,280		NA		NA		12,200		12,100		10,300		8,290		11,100		11,700		13,500		12,400		12,000		14,000	
Manganese	NA	59.4		NA		NA		102		111		94.9	*	76.6	K,*	126.0	K	135	K	118	K	102		99.5		133	
Mercury	2	0.5	U	0.5	U,L	0.5	U,L	0.5	U,J	0.1	J	0.5	UJ	0.5	U	0.5	U,J	0.5	U,J	0.5	U,L,J	0.5	U	0.5	U	0.5	U,J
Nickel	57	2.7	U	2.3	U	2.3	U	10.0	U	10.0	U	2.3	J,K,*	10.0	U	4.7	K	4.8	K	1.4	J,K	3.00	U	3.00	U	40.0	U
Potassium	NA	964	K	NA		NA		3,910	K,*	6,470	K,*	1,540	J,K,*	958	K	5,000	K	5,360	K	981	J	1,050		1,060		1,090	J
Selenium	NA	4.0	U	NA		NA		8.0	U,L	12.0	U,L	4	U	4	U	4.0	U	4.0	U	4	U	4.0	U	4.0	U	4	U
Silver	0.1	1.7	U	2.0	U	2.0	U	4.0	U	4.0	U	4.0	U	**2.1**	**J,K**	4.0	U	4.0	U	4.0	U	5.00	U	5.00	U	10.0	U
Sodium	NA	11,400	K	NA		NA		848,000		852,000		12,400		11,300		14,900		15,600		16,100		14,900		14,500		15,900	
Thallium	0.5	2.0	U	2.0	U	2.0	U	4.0	U	4.0	U	2.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	2.0	U	1.0	U
Vanadium	NA	17.0	U,L	NA		NA		20.0	U,L	15.6	J	10.0	U	20.0	U	10.0	U	10.0	U	10.0	U	5.00	U	5.00	U	50.0	U
Zinc	NA	36.0	U	NA		NA		30.0	U	30.0	U	30.0	U	30.0	U	30.0	U	30.0	U	30.0	U	30.0	U,L	11.7	J	24.7	J
Hexavalent Chromium	2.0	10	U	10.0	U,J,L	10.0	U,J,L	10.0	U	10.0	U	10.0	U	1.0	U,L	1.0	U,J,L	1.0	U,J,L	10.0	U,J,L	10.0	U,J	10.0	U,J	10.0	U,J,L
Cyanide	4	8	U	8	U	8	U	8	U	8	U	8	UJ	5	U	5	U,J	5	U,J	5	U,J	10	U	10	U	5	U,J,*
Volatile Organic Compounds																											
1,1,1-Trichloroethane	117	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	700	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Benzene	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	6	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	30	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
m- and p-Xylenes	59	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
o-Xylene	59	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	100	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl Chloride	0.2	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	J,U	1.0	U	1.0	U,J

TABLE A-17
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2006 SAMPLING EVENTS FOR PZ14A

Sample Number:	Groundwater	PZ14A		PZ14A		PZ14A		PZ14A-D		PZ14A		PZ14A		PZ14A		PZ14A		PZ14A		PZ14A		PZ14A-D	
Sampling Date:	**Cleanup Goal**	11/20/02		05/29/03		11/18/03		11/18/03		05/20/04		12/01/04		06/08/05		09/14/05		03/21/06		09/20/06		09/20/06	
Groundwater Elevation:[1]	NA	592.00		593.09		588.67		588.67		593.36		592.62		593.54		592.89		595.83		593.48		593.48	
Well Bottom Elevation:[1]	NA	582.89		582.89		582.89		582.89		582.89		582.89		582.89		582.89		582.89		582.89		582.89	
Portion of Glacial Unit:	NA	Upper		Upper		Upper		Upper		Upper		Upper		Upper		Upper		Upper		Upper		Upper	
pH (standard units)	NA	7.59		7.59		7.57		7.57		8.45		7.48		6.50		6.69		8.02		7.38		7.38	
Conductivity (mS/cm)	NA	0.937		1.07		0.957		0.957		0.763		0.886		1.140		0.960		0.980		0.430		0.430	
Turbidity (NTU)	NA	0		-10		-10		-10		572.0		844		25		111		0		0		0	
Inorganic Analytes																							
Aluminum	50	**65.3**		25.5		30.8	J,L	**63.0**	L	**7,890**		**5,630**	*	**100**	U	100	U	100	U	200	U	200	U
Antimony	3	4.0	U	4.0	U	4.0	U	4.0	U	4	U	4	U	4.0	U	4	U	4.0	U	4	U	4	U
Arsenic	0.2	2.0	U	2.0	U	2.0	U	2.0	U	**7.7**		**7.7**		2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Barium	2,000	30.9		35.9		56.2		54.6		94.4		120		42.0	K	57.4		31.8		21.8	J	22.2	J
Beryllium	NA	2.8	U	NA		0.5	U	0.5	U	0.7	J	0.9	K,*	1.0	U,L	1.0	U	1.00	U	5.0	U	5.0	U
Cadmium	4	**38.2**		**25.3**		**19.3**		**18.5**		**94.9**		**83.5**	K,*	**45.7**		**28.1**		**50.5**		**21.6**		**21.0**	
Calcium	NA	72,900		NA		75,100		75,000		80,200		77,500		92,500	K	72,000		75,900		63,500		63,000	
Chromium	7,000	3.9		11.3		2.1	J	2.6	J	164		113	L,*	51.8		6.1		50.6		66.0	L	64.5	L
Cobalt	NA	4.2	U	NA		2.0	U	2.0	U	2.9	K	3.8	K,*	0.5	J	0.5	J	3.00	U	50.0	U,*	0.3	J,*
Copper	NA	2.9	J	NA		3.2	L	3.1	L	78.0	K,*	82.4	J,*	3.0	J	3.7	J	5.72		3.7	J	2.7	J
Iron	NA	34.6	J	NA		1,620		1,580		19,400		17,200	*	134	K	18.7	J,K	77.0		206		216	
Lead	5	2.0	U	2.0	U	2.0	U	2.0	U	**11.6**		**8.9**		2.0	U	2.0	U	3.0	U	2.0	U	3.2	K
Magnesium	NA	13,100		NA		14,200		14,800		22,700		14,300		18,300		11,700		17,600		14,500		14,400	
Manganese	NA	160		NA		231		223		341	*	427	*	55.7	K	191		22.1		19.9		18.1	
Mercury	2	0.5	U	0.5	U,L	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U,J	0.5	U,L	0.5	U	0.5	U	0.5	U
Nickel	57	23.3		25.0		26.2		25.5		**77.9**	*	**78.4**	K	29.0	K,*	27.2		26.3	K	18.8	J	18.0	J
Potassium	NA	4,640	J, K	NA		3,580	K,*	3,410	K,*	5,450	K,*	4,180	K	7,980	K	3,890		3,060		1,930	J	1,880	J
Selenium	NA	4.0	U	NA		4.0	U	4.0	U	4	U	4	U	4.0	U	4	U	1.5	J	4	U	4	U
Silver	0.1	1.7	U	2.0	U	4.0	U	4.0	U	**1.2**	J,L	**2.3**	J,K	4.0	U	4.0	U	5.00	U	10.0	U	10.0	U
Sodium	NA	68,900	K	NA		98,000	L	80,000	L	56,800		85,900		97,100		92,800		89,500		21,800		21,600	
Thallium	0.5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	1.0	U	1.0	U	1.0	U	2.0	U	1.0	U	1.0	U
Vanadium	NA	17.0	U	NA		20.0	U	5.8	J	33.4		27.1	J	10.0	U	2.3	J	2.11	J	3.9	J	3.8	J
Zinc	NA	11.6	J	NA		30.0	U	30.0	U	33.8	K	41.8		18.9	J	30.0	U	20.1	J	29.4	J	26.4	
Hexavalent Chromium	2.0	**3.9**	L,J	10.0	U,J,L	10.0	U	10.0	U	**31.7**	J,L	1.0	U,L	**33.7**	J,L,*	10.0	U,J,L	**49.9**	J,L	**57.4**	J,L	**59.6**	J,L
Cyanide	4	**4**	J	**99**		**7**	J	**5**	J	**169**	J	**40**		**179**	J	**6**		**99**		**414**	J	**413**	
Volatile Organic Compounds																							
1,1,1-Trichloroethane	117	2.2		3.4		2.5		1.0	U	1.0	U,J	1.0		1.0	U	0.8	J	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	700	1.5		1.7		1.9		1.0	U	1.0	U	1.9		1.0	U	1.7	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Benzene	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	6	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.9		1.0	U	1.0	U
Ethylbenzene	30	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
m- and p-Xylenes	59	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
o-Xylene	59	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	100	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	3	1.5		1.0		1.0	U	1.0	U	0.57	J	0.7	J	0.7	J	0.8	J	0.5	J	0.37	J	0.39	J
Vinyl Chloride	0.2	1.0	U	**0.48**	J	1.0	J	1.0	U,J	1.0	U	**2.0**		**0.8**	J	**1.0**	J	1.0	U,J	1.0	U,J	1.0	U,J

TABLE A-18
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2006 SAMPLING EVENTS FOR PZ14B

Sample Number:	Groundwater	PZ14B		PZ14B		PZ14B		PZ14B		PZ14B-D		PZ14B		PZ14B-D		PZ14B		PZ14B		PZ14B-D		PZ14B	
Sampling Date:	**Cleanup Goal**	11/20/02		05/29/03		11/18/03		05/20/04		12/02/04		12/02/04		06/08/05		06/08/05		09/14/05		03/21/06		03/21/06		09/20/06	
Groundwater Elevation:	NA	591.79		592.06		589.59		593.27		592.48		592.48		592.64		592.64		591.97		594.13		594.13		592.65	
Well Bottom Elevation:[1]	NA	566.55		566.55		566.55		566.55		566.55		566.55		566.55		566.55		566.55		566.55		566.55		566.55	
Portion of Glacial Unit:	NA	Middle		Middle		Middle		Middle		Middle		Middle		Middle		Middle		Middle		Middle		Middle		Middle	
pH (standard units)	NA	8.32		8.11		8.16		8.27		7.76		7.76		8.75		8.75		7.77		8.72		8.72		7.08	
Conductivity (mS/cm)	NA	0.606		0.596		0.441		0.527		0.437		0.437		0.443		0.443		0.451		0.491		0.491		0.416	
Turbidity (NTU)	NA	0		-10		-10		150.0		0		0		0		0		0		0		0		0	
Inorganic Analytes												**Result (µg/L)**												
Aluminum	50	40.4	J	**469**		34.9	J,L	**1,600**		**198**		**6,980**		100	U	100	U	100	U	100	U	46.0	J	33.2	J
Antimony	3	4.0	U	4.0	U	4.0	U	4	U	4	U	4	U	4	U	4.0	U	4.0	U	4.0	U	4.0	U	4	U
Arsenic	0.2	2.0	U	2.0	U	2.0	U	**0.9**	J	2.0	U	**3.0**	K	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Barium	2,000	18.5		24.2		18.0		59.0		22.4		136.0		27.7	K	27.5	K	24.2		28.6		29.3		35.3	J
Beryllium	NA	2.8	U	NA		0.5	U	0.3	J	1.0	U	0.3	J	1.0	U,L	1.0	U,L	1.0	U	1.00	U	1.00	U	5.0	U
Cadmium	4	**12.5**		**25.7**		**26.5**		**35.1**		**25.3**		**108**		**26**		**26.2**		**25.0**		**22.8**		**22.9**		**31.9**	
Calcium	NA	30,900		NA		52,400		70,500		52,700		232,000		60,600		61,100		52,600		51,200		48,800		65,600	
Chromium	7,000	22.6		25.4		19.5		41.0		17.4		44.0		23.7		23.5		21.1		28.8		30.6		15.2	L
Cobalt	NA	4.2	U	NA		0.4	J,K	0.8	J,K	0.3	J,K	2.4	K	1.0	U	0.4	J	1.0	U	3.00	U	3.00	U	50.0	U,*
Copper	NA	2.0	J	NA		3.8	L	5.6	J,K,*	3.6	J	54.3		2.5	J	3.1	J	3.6	J	4.37	J	5.63		4.9	J,L
Iron	NA	41.0	J	NA		36.7		1,750		156		6,850		17	J,K	10.5	J,K	20.0	U	20.2	J	65.5		47.4	J
Lead	5	2.0	U	0.7	J	2.0	U	2.2		0.8	J	**11.4**		2.0	U	2.0	U	2.0	U	3.0	U	3.0	U	2.0	U
Magnesium	NA	8,720		NA		15,600		19,000		14,900		67,600		13,700		13,900		14,600		12,000		11,700		12,800	
Manganese	NA	8.6	U	NA		1.8		35.4	*	5.1	*	392		1	U	1.0	U	1.0	U	0.467	J	2.23	L	1.3	J
Mercury	2	0.5	U	0.5	U	0.2	J	0.5	UJ	0.5	U	0.5	U	0.5	U,J	0.5	U,J	0.5	U,L	0.5	U	0.5	U	0.5	U
Nickel	57	3.0		4.5	L	4.8	J	12.6	K,*	8.7	K	31.4		11.0	K,*	11.0	K,*	8.2		5.97	K	6.49	K	8.6	J
Potassium	NA	1,600	J, K	NA		1,620	J,K*	3,200	K,*	3,630	K	4,420	K	5,370	K	5,440	K	2,090		2,420		2,340		2,780	J
Selenium	NA	4.0	U	NA		4.0	U	4	U	4	U	4	U	4	U	4.0	U	4.0	U	4.0	U	4.0	U	4	U
Silver	0.1	1.7	U	2.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	5.00	U	5.00	U	10.0	U
Sodium	NA	66,800	K	NA		28,600	L	13,100		12,000	L	12,600	L	14,600	L	14,700		12,700		27,300		27,700		17,600	
Thallium	0.5	2.0	U	2.0	U	2.0	U	2.0	U	1.0	U	2.0	U	1.0	U	1.0	U	1.0	U	2.0	U	2.0	U	1.0	U
Vanadium	NA	17.0	U	NA		20.0	U,L	10.0	U	10.0	U	8.4	J	10.0	U	10.0	U	10.0	U	5.00	U	5.00	U	50.0	U
Zinc	NA	36.0	U	NA		30.0	U	30.0	U	17.7	J	95.1	U	30.0	U	12.1	J	30.0	U	11.9	J	7.91	J	29.1	J
Hexavalent Chromium	2.0	**26**		**28.7**	J,L	**20.1**		**25.8**	J,L	**11.6**	L	1.8	L	**12.1**	J,L,*	**13.4**	J,L,*	10.0	U,J,L	**30.1**	J,L	**31.8**	J,L	**12.3**	J,L
Cyanide	4	**76**	J	**15**		**17**	J	**14**	J	**6**		**6**		**17**	J	**12**	J	**6**		**27**		**28**		**14**	K
Volatile Organic Compounds												**Result (µg/L)**												
1,1,1-Trichloroethane	117	1.0	UJ	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	700	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.4	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Benzene	1	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	6	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	30	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
m- and p-Xylenes	59	2.0	UJ	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	1.0	U	2.0	U	2.0	U	2.0	U
o-Xylene	59	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	100	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	3	1.0	UJ	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl Chloride	0.2	1.0	UJ	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	J,U	1.0	U	1.0	U

TABLE A-19
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2006 SAMPLING EVENTS FOR PZ14C

Sample Number:	Groundwater	PZ14C		PZ14C		PZ14C		PZ14C		PZ14C		PZ14C		PZ14C		PZ14C	
Sampling Date:	**Cleanup Goal**	11/20/02		05/29/03		11/18/03		05/20/04		12/01/04		06/08/05		09/14/05		03/21/06		09/20/06	
Groundwater Elevation:[1]	NA	591.56		592.04		571.96		593.12		592.28		592.48		591.76		594.14		592.45	
Well Bottom Elevation:[1]	NA	547.55		547.55		547.55		547.55		547.55		547.55		547.55		547.55		547.55	
Portion of Glacial Unit:	NA	Lower		Lower		Lower		Lower		Lower		Lower		Lower		Lower		Lower	
pH (standard units)	NA	8.45		8.42		8.44		8.17		7.99		8.50		7.83		9.66		7.79	
Conductivity (mS/cm)	NA	0.514		0.564		0.338		0.289		0.425		0.370		0.365		0.400		0.357	
Turbidity (NTU)	NA	1		-10		-10		45.0		18		0		0		24		0	
Inorganic Analytes									**Result (µg/L)**										
Aluminum	50	**56.3**		45.6		17.7	J,L	80.0	U	**234**	**K,***	100	U	100	U	100	U	200	U
Antimony	3	4.0	U	4.0	U	4.0	U	4	U	4	U	4.0	U	4	U	4.0	U	4	U
Arsenic	0.2	2.0	U	2.0	U	2.0	U	**0.7**	**J**	**1.4**	**J**	2.0	U	**0.6**	J	**0.7**	J	**0.6**	**J**
Barium	2,000	65.4		52.6		52.7		41.7		65.1		78.7	K	65.2		78.2		78.6	J
Beryllium	NA	2.8	U	NA		0.5	U	1.0	U	0.4	J,K,*	1.0	U,L	1.0	U	1.00	U	5.0	U
Cadmium	4	1.2		1.3	U	2.8	K	0.6	J	**6.8**	**J,***	1.0	J,K	1.0	J,K	1.66	J	0.5	J
Calcium	NA	47,300		NA		39,600		29,800		40,900		45,100	K	42,000		46,700		42,700	
Chromium	7,000	0.9	U	1.3	U	2.0	U	4.6		1.3	J,*	2.0	J	2.4	J	5.00	U	0.5	J,L
Cobalt	NA	4.2	U	NA		2.0	U	2.0	U	1.0	J,K,*	0.4	J	1.0	U	3.00	U	50.0	U
Copper	NA	4.4	U	NA		2.0	J,L	6.0	U,*	3.0	U,L,*	6.0	U	6.0	U	1.83	J	0.9	
Iron	NA	19.9	J	NA		10.2	J	10.4	J,L	238	K,*	8.0	J,K	15.6	J,K	20.5	J	100	U
Lead	5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	0.5	J	2.0	J	3.0	J	2.0	U
Magnesium	NA	12,900		NA		11,500		8,840		11,100		10,400		11,100		12,000		12,500	
Manganese	NA	49.8	*	NA		42.7		37.0	*	53.6	K,*	52.1	K	77.9		60.4		43.0	
Mercury	2	0.5	U	0.5	U	0.2	J	0.5	UJ	0.5	U	0.1	J	0.5	U,L	0.5	U	0.5	U
Nickel	57	2.5	J	1.0	J,L	10.0	U	3.4	J,K,*	10.0	U	6.4	K,*	3.8		2.67	J	3.1	J,K
Potassium	NA	1,150	J, K	NA		1,240	J,K,*	2,320	K,*	1,400	K	5,250	K	969	J	1,020		1,010	J
Selenium	NA	4.0	U	NA		4.0	U	4	U	4	U	4.0	U	4	U	4.0	U	4	U
Silver	0.1	1.7	U	2.0	U	4.0	U	4.0	U	**0.9**	**J,K**	4.0	U	4.0	U	5.00	U	10.0	U
Sodium	NA	14,700	K	NA		18,300	L	6,740		9,180	K	18,200		9,970		5,000		19,000	
Thallium	0.5	2.0	U	2.0	U	2.0	U	2.0	U	1.0	U	1.0	U	1.0	U	2.0	U	1.0	U
Vanadium	NA	17.0	U	NA		20.0	U,L	10.0	U	20.0	U	10.0	U	1.5	J	1.90	J	2.0	J
Zinc	NA	36.0	U	NA		30.0	U	30.0	U	30.0	U	30.0	U	30.0	U	10.3	J	20.6	J
Hexavalent Chromium	2.0	10	U	10.0	U,J,L	10.0	U	10.0	U,J,L	1.0	U,L	1.0	U,J,L,*	10.0	U,J,L	10.0	U,J,L	10.0	U,J,L
Cyanide	4	8	U	8	U	8	U,J	8	UJ	5	U	5	U,J	5	U	10	U	**9**	**K**
Volatile Organic Compounds									**Result (µg/L)**										
1,1,1-Trichloroethane	117	1.0	UJ	1.0	U	2.9		1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	700	1.0	U	1.0	U	2.1		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Benzene	1	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	6	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	30	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
m- and p-Xylenes	59	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
o-Xylene	59	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	100	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	3	1.0	U	1.0	U	0.89	J	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl Chloride	0.2	1.0	U	1.0	U	**1.1**	J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	J,U	1.0	U

TABLE A-20
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2006 SAMPLING EVENTS FOR PZ15A

Sample Number:	Groundwater	PZ15A		PZ15A		PZ15A		PZ15A		PZ15A		PZ15A		PZ15A		PZ15A	
Sampling Date:	**Cleanup Goal**	11/20/02		05/29/03		11/18/03		05/20/04		12/02/04		06/07/05		09/14/05		03/21/06		09/19/06	
Groundwater Elevation:[1]	NA	592.36		592.46		593.29		593.54		592.88		592.95		592.43		593.04		593.75	
Well Bottom Elevation:[1]	NA	583.03		583.03		583.03		583.03		583.03		583.03		583.03		583.03		583.03	
Portion of Glacial Unit:	NA	Upper		Upper		Upper		Upper		Upper		Upper		Upper		Upper		Upper	
pH (standard units)	NA	7.70		7.40		7.87		8.21		7.46		7.56		6.80		8.70		6.84	
Conductivity (mS/cm)	NA	0.888		6.20		0.920		0.807		1.070		1.160		0.980		1.000		0.645	
Turbidity (NTU)	NA	0		999		-10		834.0		619		0		0		0		0	
Inorganic Analytes								**Result (µg/L)**											
Aluminum	50	**73.0**		**16,000**		44.5	L	**9,120**		**5,990**		100	U	28.8	J	100	U	200	U
Antimony	3	4.0	U	4.0	U	4.0	U	4	U	4	U	4.0	U	4	U	4.0	U	4	U
Arsenic	0.2	2.0	U	**9.5**		2.0	U	**6.2**		**3.5**	K	2.0	U	2.0	U	2.0	U	2.0	U
Barium	2,000	41.7		181		44.4		125		84.6		70.5	K	47.4		56.5		51.4	J
Beryllium	NA	2.8	U	NA		0.5	U	0.7	J	1.0	U	1.0	U,L	1.0	U	1.00	U	5.0	U
Cadmium	4	**26.3**		**156**		**37.9**		**115**		**90.4**		**33.5**		**41.2**		**31.1**		**25.7**	
Calcium	NA	86,900		NA		92,200		110,000		94,100		103,000	K	85,300	K	83,100		80,300	
Chromium	7,000	8.7		206		3.6	J	169		95.2		37.7		6.4		25.9		29.0	L
Cobalt	NA	4.2	U	NA		2.0	U	4.3	K	2.2	K	0.5	J	0.4	J	3.00	U	0.2	*
Copper	NA	4.4	U	NA		4.0	L	42.1	K,*	25.5		6.0	U	3.1	J	4.38	J	2.5	J
Iron	NA	18.8	J	NA		28.2	J	15,700		7,390		20.0	U	16.5	J,K	50.0	U	100.0	U
Lead	5	2.0	U	**21.1**		2.0	U	**9.8**		**6.1**		0.5	J	2.0	J	3.0	J	2.3	K
Magnesium	NA	16,000		NA		16,000		27,200		345		16,800		14,800		16,000		14,700	
Manganese	NA	5.9	J	NA		58.4		387	*	79.8		34.2	K	80.6		29.1		38.0	
Mercury	2	0.5	U	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U,J	0.5	U,L	0.5	U	0.5	U
Nickel	57	18.5		**117**		25.3		**99.1**	*	**79.8**		25.1	K,*	30.2		15.9	K	18.1	J
Potassium	NA	5,250	J, K	NA		5,610	K,*	9,830	K,*	8,130	K	10,500	K	5,890		4,860		5,480	
Selenium	NA	4.0	U	NA		4.0	U	4	U	4	U	4.0	U	4	U	4.0	U	4	U
Silver	0.1	1.7	U	**1.1**	J	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	5.00	U	10.0	U
Sodium	NA	85,500	K	NA		59,800	L	50,000		88,700	L	95,200		86,000		88,400		66,300	
Thallium	0.5	2.0	U	**1.3**	J	2.0	U	2.0	U	2.0	U	1.0	U	2.0	U	2.0	U	1.0	U
Vanadium	NA	17.0	U	NA		20.0	U,L	13.6		9.3	J	10.0	U	10.0	U	5.00	U	0.3	J
Zinc	NA	16.4	J	NA		30.0	U	31.1	K	43.5	K	13.9	J	12.3	J	6.43	J	31.7	J
Hexavalent Chromium	2.0	**10**		**18.0**	J,L	**3.2**	**J**	**24.5**		1.0	U,L	**22.8**	**J,L,***	10.0	U,J,L	**25.2**	**J,L**	**25.1**	**J,L**
Cyanide	4	**7**	J	3	J	8	U,J	**4**	**J**	5	U	5	U,J	**6**		10	U	**5**	**J,K**
Volatile Organic Compounds								**Result (µg/L)**											
1,1,1-Trichloroethane	117	1.0	U	1.0	U	1.0	U,J	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	700	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.4	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Benzene	1	1.0		1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	6	1.0		1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	30	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
m- and p-Xylenes	59	2.0	U	2.0	U	2.0	U,J	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
o-Xylene	59	2.0		1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	100	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	5.4	U
Trichloroethene	3	1.0	U	1.1		1.2	J	1.0	U,J	0.6	J	1.0	U	0.3	J	1.0	U	1.0	U
Vinyl Chloride	0.2	1.0	U	1.0	U	**2.5**	J	1.0	U	**0.8**	J	1.0	U	1.0	U	1.0	U,J	1.0	U

TABLE A-21
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2006 SAMPLING EVENTS FOR PZ15B

Sample Number:	Groundwater	PZ15B		PZ15B		PZ15B		PZ15B		PZ15B		PZ15B		PZ15B		PZ15B	
Sampling Date:	Cleanup Goal	11/20/02		05/29/03		11/18/03		05/20/04		12/02/04		06/08/05		09/14/05		03/21/06		09/19/06	
Groundwater Elevation:[1]	NA	592.25		592.41		589.63		593.55		592.85		592.95		592.34		594.19		594.00	
Well Bottom Elevation:[1]	NA	568.04		568.04		568.04		568.04		568.04		568.04		568.04		568.04		568.04	
Portion of Glacial Unit:	NA	Middle		Middle		Middle		Middle		Middle		Middle		Middle		Middle		Middle	
pH (standard units)	NA	8.09		7.96		8.17		8.76		8.08		10.83		7.76		9.29		7.57	
Conductivity (mS/cm)	NA	0.591		0.665		0.569		0.615		0.707		0.543		0.588		0.511		0.389	
Turbidity (NTU)	NA	1		-10		40		3.0		0		0		0		0		0	
Inorganic Analytes											Result (µg/L)								
Aluminum	50	**110**		**101**		**112**	L	**253**		**679**		*100*	U	***10,800***		*36.0*	J	*200*	U
Antimony	3	4.0	U	4.0	U	4.0	U	4	U	8	U	4.0	U	4	U	4.0	U	4	U
Arsenic	0.2	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	**4.8**		2.0	U	2.0	U
Barium	2,000	32.5		35.5		35.1		56.3		59.2		63.5	K	299		55.2		43.4	J
Beryllium	NA	2.8	U	NA		0.5	U	1.0	U	1.0	U	1.0	L,U	1.1		1.00	U	5.0	U
Cadmium	4	1.0	U	1.3	U	1.8	J,K	0.5	J	0.8	J	0.5	J,K	**25.9**		1.36	J	0.4	J
Calcium	NA	58,100		NA		53,900		74,700		68,100		74,000	K	237,000		57,700		50,000	
Chromium	7,000	7.8		5.3	L	6.5	K	17.2		9.0		11.1		58.4		8.38		3.9	J,L
Cobalt	NA	4.2	U	NA		2.0	U	0.5	J,K	1.0	U	0.4	J	3.9		3.00	U	50.0	U,*
Copper	NA	4.4	U	NA		1.8	J,L	10.1	K,*	3.1	J	1.9	J	35.1		4.32	J	2.0	J
Iron	NA	68.9		NA		64.6		148		469		21.0	K	13,000		27.2	J	100	U
Lead	5	2.0	U	2.0	U	2.0	U	2.0	U	1.0	J	2.0	U	**18.5**		3.0	U	2.0	U
Magnesium	NA	13,800		NA		12,100		17,000		16,900		14,600		82,600		13,800		13,200	
Manganese	NA	8.6	U,*	NA		1.1		2.1	L,*	10.6	L,*	1.0	U	515		0.840	J	15.0	U
Mercury	2	0.5	U	0.5	U,L	0.2	J	0.5	UJ	0.5	U	0.5	U,J	0.5	U,L	0.5	U	0.5	U
Nickel	57	5.1		3.0	L	3.0	J	7.9	J,K,*	7.6	K	8.2	K,*	31.3		3.76	J	3.0	J
Potassium	NA	2,960	J, K	NA		2,420	J,K*	5,200	K,*	5,230	K	7,600	K	5,640		3,040		2,400	J
Selenium	NA	4.0	U	NA		4.0	U	4	U	4	U	1.0	J	4	J	1.3	J	4	U
Silver	0.1	1.7	U	2.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	5.00	U	10.0	U
Sodium	NA	23,100	K	NA		41,200	L	14,100		33,000	L	19,300		32,400		21,500		31,100	
Thallium	0.5	2.0	U	2.0	U	2.0	U	2.0	U	1.0	U	1.0	U	3.0	U	2.0	U	1.0	U
Vanadium	NA	17.0	U	NA		20.0	U,L	10.0	U	10.0	U	10.0	U	14.5		5.00	U	0.6	J
Zinc	NA	36.0	U	NA		30.0	U	30.0	U	21.5	J	10.3	J	73.3		10.6	J	22.0	J
Hexavalent Chromium	2.0	**9.7**		**5.1**	J,L	**6.5**	J	**7.2**		1.0	U,L	13.5	J,L,*	10.0	U,J,L	**7.68**	J,L	**3.3**	**J,L**
Cyanide	4	8	U	8	U	8	U,J	8	UJ	5	U	5	U,J	5	U	10	U	3	J,K
Volatile Organic Compounds											Result (µg/L)								
1,1,1-Trichloroethane	117	1.0	UJ	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	700	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Benzene	1	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	6	2.3	J	0.9	J	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	30	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
m- and p-Xylenes	59	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
o-Xylene	59	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	100	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	3	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl Chloride	0.2	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U

TABLE A-22

GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2006 SAMPLING EVENTS FOR PZ15C

Sample Number:	Groundwater	PZ15C		PZ15C		PZ15C		PZ15C		PZ15C-D		PZ15C		PZ15C		PZ15C		PZ15C-D		PZ15C		PZ15C	
Sampling Date:	**Cleanup Goal**	11/20/02		05/29/03		11/18/03		05/20/04		05/20/04		12/02/04		06/07/05		09/14/05		09/14/05		03/22/06		09/20/06	
Groundwater Elevation:[1]	NA	592.20		592.12		593.26		593.51		593.51		592.81		592.91		592.29		592.29		594.21		594.00	
Well Bottom Elevation:[1]	NA	548.56		548.56		548.56		548.56		548.56		548.56		548.56		548.56		548.56		548.56		548.56	
Portion of Glacial Unit:	NA	Lower		Lower		Lower		Lower		Lower		Lower		Lower		Lower		Lower		Lower		Lower	
pH (standard units)	NA	8.23		8.16		8.3		8.89		8.89		8.16		8.87		7.92		7.92		9.40		6.79	
Conductivity (mS/cm)	NA	0.716		0.681		0.668		0.670		0.670		0.673		0.604		0.646		0.646		0.478		0.465	
Turbidity (NTU)	NA	0		-10		-10		3.0		3.0		0		0		0		0		0		0	
Inorganic Analytes																							
Aluminum	50	**54.8**		27.5		24.9	J,L	80.0	U	80.0	U	100	U	100	U	100	U	**808**		100	U	200	U
Antimony	3	4.0	U	4.0	U	4.0	U	4	U	4	U	4	U	4.0	U	4	U	1	J	4.0	U	4	U
Arsenic	0.2	2.0	U	2.0	U	2.0	U	**0.7**	J	**0.8**	J	**0.6**	J,K	**0.8**	J	**0.9**	J	**1.1**	J	**1.0**	J	**1.3**	J
Barium	2,000	75.2		72.2		76.2		85.1		83.6		76.2		94.8	K	76.3		86.9		64.9		86.1	J
Beryllium	NA	2.8	U	NA		0.5	U	1.0	U	1.0	U	1.0	U	1.0	U,L	1.0	U	1.0	U	1.00	U	5.0	U
Cadmium	4	1.0	U	1.3	U	1.1	K,J	1.0	U	1.0	U	2.0	U	2.0	U	2.0	U	1.6	J,K	2.00	U	5.0	U
Calcium	NA	56,400		NA		59,400		61,000		60,600		58,500		63,200	K	55,800		77,800		43,300		56,700	
Chromium	7,000	3.8		3.5	L	3.4	J	12.8		13.7		6.7		5.7	J	6.8		13.4		5.00	U	2.1	J,L
Cobalt	NA	4.2	U	NA		2.0	U	0.3	J,K	0.4	J,K	1.0	U	1.0	U	1.0	U	0.7	J	3.00	U	50.0	U,*
Copper	NA	4.4	U	NA		1.3	J,L	6.0	UL,*	6	UL,*	6.0	U	6.0	U	6.0	U	4.4	J	2.08	J	25.0	U
Iron	NA	14.2	J	NA		10.9	J	8.2	J,L	9.7	J,L	4.8	J,L	20.0	U	20.0	U	970		50.0	U	100	U
Lead	5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	0.9	J	3.0	U	2.0	U
Magnesium	NA	16,200		NA		17,300		18,400		18,300		16,900		16,600		16,600		25,500		13,500		16,900	
Manganese	NA	7.9	J	NA		5.7		3.3	L,*	5.2	*	5.3	L,*	2.0	K	6.9		101		11.1		3.7	J
Mercury	2	0.5	U	0.5	U	0.5	U	0.5	UJ	0.5	UJ	0.5	U	0.5	U,J	0.5	U,L	0.5	U,L	0.5	U	0.5	U
Nickel	57	1.1	J	2.3	U	10.0	U	2.6	J,K,*	3.2	J,K,*	3.3	K	4.7	K,*	1.5	J	5.2		3.00	U	1.2	J,K
Potassium	NA	1,460	J, K	NA		1,520	J,K*	4,150	K,*	2,920	K,*	3,390	K	5,940	K	1,220	J	1,550	J	1,050		1,350	J
Selenium	NA	4.0	U	NA		4.0	U	4	U	4	U	4	U	4.0	U	4	U	4	U	4.0	U	4	U
Silver	0.1	1.7	U	2.0	U	4.0	U	4.0	U	4.0	U	4.0	U	1.0	J,K	4.0	U	4.0	U	5.00	U	10.0	U
Sodium	NA	37,000	K	NA		34,000	L	35,600		34,800		30,100	L	37,700		31,900		31,300		24,300		32,000	
Thallium	0.5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	1.0	U	1.0	U	1.0	U	2.0	U	2.0	U	1.0	U
Vanadium	NA	17.0	U	NA		20.0	U,L	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	2.0	J	5.00	U	1.2	J
Zinc	NA	36.0	U	NA		30.0	U	30.0	U	30.0	U	13.0	J	16.3	J	30.0	U	19.8	J	30.0	U	25.7	J
Hexavalent Chromium	2.0	**5.4**	J	**3.1**	J,L	**4.3**	J,L	**3.0**		**2.9**	**J,L**	1.0	U,L	1.0	U,L,J,*	10.0	U,J,L	10.0	J,J	0.561	J,L	10.0	U,J,L
Cyanide	4	8	U	8	U	8	U,J	8	UJ	8	UJ	5	U	5	U,J	5	U	5	U	10	U	**7**	**K**
Volatile Organic Compounds																							
1,1,1-Trichloroethane	117	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	700	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Benzene	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	6	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	30	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
m- and p-Xylenes	59	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
o-Xylene	59	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	100	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	3	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl Chloride	0.2	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U

TABLE A-23
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2006 SAMPLING EVENTS FOR PZ16

Sample Number:	Groundwater	PZ16		PZ16		PZ16		PZ16		PZ16		PZ16		PZ16		PZ16	
Sampling Date:	Cleanup Goal	11/20/02		05/29/03		11/18/03		05/20/04		12/01/04		06/08/05		09/14/05		03/22/06		09/20/06	
Groundwater Elevation:[1]	NA	592.01		592.13		592.66		592.34		593.13		592.56		591.84		594.10		592.99	
Well Bottom Elevation:[1]	NA	587.53		587.53		587.53		587.53		587.53		587.53		587.53		587.53		587.53	
Portion of Glacial Unit:	NA	Upper		Upper		Upper		Upper		Upper		Upper		Upper		Upper		Upper	
pH (standard units)	NA	7.45		7.78		7.49		7.67		7.30		2.18		6.63		8.41		7.34	
Conductivity (mS/cm)	NA	1.09		0.94		1.49		1.30		1.63		2.33		1.52		2.960		1.40	
Turbidity (NTU)	NA	1		-10		-10		5.0		43		0		113		0		23	
Inorganic Analytes											Result (µg/L)								
Aluminum	50	**199**		**4,520**		**191**	L	**1,090**		**1,440**	*	100	U	**60.4**	J	100	U	**401**	
Antimony	3	4.0	U	1.2	J	4.0	U	4	U	2	J	2.0	J	1	J	4.0	U	2.0	J
Arsenic	0.2	2.0	U	**4.4**		2.0	U	**1.6**	**J**	**3.1**		**0.5**	**J**	**1.1**	**J**	**0.6**	J	**0.6**	**J,***
Barium	2,000	73.2		426		117		119		154		200	K	109		216		44.9	J
Beryllium	NA	2.8	U	NA		0.5	U	1.0	U	0.4	J,K,*	1.0	U,L	1.0	U	1.00	U	5.0	U,L
Cadmium	4	1.0	U	**24.6**		1.9	J,K	**4.9**		**12.2**	J,*	2.0	U	2.0	U	2.00	U	**9.9**	
Calcium	NA	89,100		NA		94,700		72,600		103,000		146,000		84,500		148,000		96,000	
Chromium	7,000	4.2		49.2		6.5	K	30.3		20.5	L,*	6.4		7.3		3.26	J	16.2	
Cobalt	NA	4.2	U	NA		2.0	U	1.2	K,J	1.8	J,K,*	0.5	J	1.0	U	3.00	U	0.3	J,K*
Copper	NA	3.9	J	NA		4.7	L	21	K,*	32.2	J,*	6.0	U	2.0	J	3.49	J	15.3	J
Iron	NA	805		NA		760		3,050		6,310	K,*	1,060	K	412		1,070		1,310	
Lead	5	2.3		**43.1**		2.9		**13.3**		**20.7**		0.8	J	2.0	U	3.0	U	**9.9**	*
Magnesium	NA	9,790		NA		13,200		9,490		15,100		20,700		12,100		23,000		18,100	
Manganese	NA	172		NA		230		206	*	316	*	334	K	182	K	355		90.6	
Mercury	2	0.5	U	0.5	U,L	0.5	U	0.5	UJ	0.5	U	0.5	U,J	0.5	U,L	0.5	U	0.5	U,J
Nickel	57	3.7		17.7		10.0	U	10.8	K,*	9.6	J,K	5.1	K,*	2.2		3.00	U	13.1	J
Potassium	NA	9,960	J, K	NA		11,000	K,*	8,710	K,*	8,130	K	11,000	K	6,360		7,740		7,400	
Selenium	NA	4.0	U	NA		4.0	U	8	U	4	U	4.0	U	4	L	4.0	U	4	U
Silver	0.1	1.7	U	**0.7**	J	4.0	U	4.0	U	1.6	J,K	4.0	U	4.0	U	5.00	U	10.0	U
Sodium	NA	139,000	K	NA		199,000	L	460,000		190,000		259,000		201,000		390,000		102 000	
Thallium	0.5	2.0	U	2.0	U	2.0	U	2.0	U	1.0	U	1.0	U	0.3	J	2.0	U	1.0	U
Vanadium	NA	17.0	U	NA		13.3	J	7.7	J	**6.1**	**J**	10.0	U	3.2	J	5.00	U	1.7	K,J
Zinc	NA	12.4	J	NA		30.0	U	25.0	J,K	34.7		16.6	J	30.0	U	8.40	J	50.6	J
Hexavalent Chromium	2.0	10	U,L	10.0	UJ,L	10.0	U	**2.5**	**J,L**	1.0	U,L	1.0	J,J,L	10.0	U	10.0	U	10.0	U,J,L
Cyanide	4	**8**	J	**29**		**8**	U,J	**4**	**J**	5	U	5	U,J	5	U	10	U	**6**	**J,***
Volatile Organic Compounds											Result (µg/L)								
1,1,1-Trichloroethane	117	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	700	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Benzene	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	6	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	30	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
m- and p-Xylenes	59	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
o-Xylene	59	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	100	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	3	2.2		0.87	J	0.96	J	1.0	J	0.9	J	1.1		**3.0**		0.5	J	1.0	U
Vinyl Chloride	0.2	**1.7**		**0.77**		**3.9**	J	**1.9**		**5.1**		**1.5**		**1.8**		**2.2**	J	**2.4**	J

TABLE A-24
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2006 SAMPLING EVENTS FOR PZ17

Sample Number:	Groundwater	PZ17		PZ17		PZ17		PZ17		PZ17		PZ17		PZ17		PZ17		PZ17	
Sampling Date:	**Cleanup Goal**	11/20/02		05/29/03		11/18/03		05/20/04		12/02/04		06/08/05		09/14/05		03/22/06		09/21/06	
Groundwater Elevation:[1]	NA	592.89		593.17		593.90		594.06		593.05		593.44		592.90		594.16		594.25	
Well Bottom Elevation:[1]	NA	589.22		589.22		589.22		589.22		589.22		589.22		589.22		589.22		589.22	
Portion of Glacial Unit:	NA	Upper		Upper		Upper		Upper		Upper		Upper		Upper		Upper		Upper	
pH (standard units)	NA	7.43		7.30		7.30		8.05		6.89		5.52		6.80		8.01		6.90	
Conductivity (mS/cm)	NA	0.98		1.28		1.24		2.82		1.38		1.45		1.20		1.180		0.895	
Turbidity (NTU)	NA	17		-10		-10		64.0		127		0		0		1		19	
Inorganic Analytes																			
Aluminum	50	**747**		**345**		22.1	J,L	33.5	J	**1,130**	**J**	3.5	K	100	U	100	U	**425**	
Antimony	3	4.0	U	4.0	U	4.0	U	4	U	4	U	142,000	K	4	U	4.0	U	**3**	**J**
Arsenic	0.2	2.0	U	2.0	U	2.0	U	2.0	U	**0.9**	**J,K**	9.9		2.0	U	2.0	U	**1.5**	**J**
Barium	2,000	37.3		42.0		43.3		40.3		49.9		0.4	J	42.1		45.2		89.9	J
Beryllium	NA	2.8	U	NA		0.5	U	1.0	U	1.0	U	6.0	U	1.0	U	1.00	U	5.0	U
Cadmium	4	1.6		**15.4**		2.0	J,K	1.0	U	3.5		289	K	0.5	J,K	2.00	U	3.1	J
Calcium	NA	101,000		NA		131,000		122,000		138,000		1.7	J	106,000		110,000		65,400	
Chromium	7,000	67.1		8.7		4.0	J	16.2		28.2		24,500		11.7		4.16	J	9.3	J,L
Cobalt	NA	4.2	U	NA		2.0	U	0.6	J,K	0.6	J,K	146	K	0.5	J	3.00	U	0.3	J,*
Copper	NA	144		NA		1.4	J,L	6.0	U,*	34.5		0.5	U,J	6.0	U	2.54	J	11.9	J
Iron	NA	877		NA		211		894		2,410		12.5	K,*	130	K	592		1,810	
Lead	5	**5.1**		**7.0**		0.8	J	2.0	U	**14.1**		11,300	K	2.0	U	3.0	U	**7.1**	K
Magnesium	NA	18,000		NA		24,400		24,600		25,900		4	U	20,100		21,800		8,830	
Manganese	NA	79.5		NA		141		120	*	142		4.0	U	102		175		141	
Mercury	2	0.5	U	0.5	U,L	0.5	U	0.5	UJ	0.5	U	123,000		0.5	U,L	0.5	U,L	0.5	U
Nickel	57	39.5		15.5		8.9	J	8.7	J,K,*	42.0		1.0	U	8.1		4.62	K	4.9	J,K
Potassium	NA	6,470	J, K	NA		7,170	K,*	8,540	K,*	8,980	K	10.0	U	7,250		5,710		5,490	
Selenium	NA	4.0	U	NA		4.0	U	4	U	4	U	14.9	J	4	U	4.0	U	4	U
Silver	0.1	1.7	U	2.0	U	**1.1**	J	4.0	U	4.0	U	1.0	U,J,L,*	4.0	U	5.00	U	10.0	U
Sodium	NA	92,800	K	NA		99,500	L	90,100		103,000	L	5	U,J	107,000		99,200		183,000	
Thallium	0.5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	1.0	U	2.0	U	2.0	U	1.0	U
Vanadium	NA	17.0	U	NA		8.2	J	10.0	U	3.8	J	10.0	U	10.0	U	5.00	U	6.7	J
Zinc	NA	19.2	J	NA		30.0	U	30.0	U	60.7		14.9	J	30.0	U	7.47	J	41.8	J
Hexavalent Chromium	2.0	10	U	10.0	UJ,L	10.0	U	10.0	UJ,L	1.0	U,L	1.0	U,J,L,*	**10.4**	**J,L**	10.0	U	10.0	U,J,L
Cyanide	4	8	U	7	J	8	U,J	3	J	5	U	5	U,J	5	U	10	U	**11**	**K**
Volatile Organic Compounds																			
1,1,1-Trichloroethane	117	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	700	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	1.0	U
1,2-Dichloroethane	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Benzene	1	1.0	U	1.0	U	1.0	U	0.50	J	0.5	J	1.0	U	1.0	U	0.3	J	1.0	U
Chloroform	6	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	30	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
m- and p-Xylenes	59	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	1.0	U	2.0	U
o-Xylene	59	2.0		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	100	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	0.5	J	1.0	U
Trichloroethene	3	1.4		1.0	U	1.0		0.63	J	1.0	U	1.0	U	0.5	J	1.0	U	1.0	
Vinyl Chloride	0.2	**0.7**		**1.0**		**5.1**		**3.3**		**6.6**		**3.3**		**2.3**		**5.3**	J	**1.4**	

TABLE A-25
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2006 SAMPLING EVENTS FOR EW1

Sample Number:	Groundwater	EW1		EW1		EW1		EW1		EW1		EW1		EW1-D		EW1		EW1	
Sampling Date:	**Cleanup Goal**	11/21/02		05/28/03		11/18/03		05/20/04		11/30/04		06/07/05		09/12/05		09/12/05		03/22/06		09/20/06	
Groundwater Elevation:[1]	NA	--		--		--		--		--		--		--		--		--		--	
Well Bottom Elevation:[1]	NA	539.10		539.10		539.10		539.10		539.10		539.10		539.10		539.10		539.10		539.10	
Portion of Glacial Unit:	NA	NA[2]		NA[2]		NA[2]		NA[2]		NA[2]		NA[2]		NA[2]		NA[2]		NA[2]		NA[3]	
pH (standard units)	NA	--		--		--		6.09		7.01		7.34		9.54		9.54		8.90		6.79	
Conductivity (mS/cm)	NA	--		--		--		0.790		0.840		0.754		0.773		0.773		0.781		0.699	
Turbidity (NTU)	NA	--		--		--		0.0		0		0		0		0		0		0	
Inorganic Analytes											**Result (µg/L)**										
Aluminum	50	45.7		12.3	J	40.0	U,L	80.0	U	100	U	100	U	100	U	100	U	100	U	200	U
Antimony	3	4.0	U	4.0	U	4.0	U	4	U	4	U	4.0	U	4	U	4	U	4.0	U	4	U
Arsenic	0.2	2.0	U	2.0	U	**0.6**	J	**0.7**	**J**	**0.5**	**J**	**0.5**	**J**	**0.5**	**J**	2.0	U	**0.6**	J	2.0	U
Barium	2,000	69.1		70.8		72.6		68.8		67.8		78.1	K	68.4		66.3		67.9		74.2	J
Beryllium	NA	2.8	U	NA		0.2	J,K	1.0	U	1.0	U	1.0	U,L	1.0	U	1.0	U	1.00	U	5.0	U
Cadmium	4	**176**		**124**		**135**		**124**		**123**		**92.7**		**80.2**		**81.6**		**95.9**		**107**	
Calcium	NA	65,200		NA		70,400		65,700		68,100		70,500		67,300		66,900		65,900		69,600	
Chromium	7,000	11.2		10.4		12.9		18.8		16.4		16.2		16.2		16.9		14.2		15.0	
Cobalt	NA	4.2	U	NA		2.0	U	0.4	J,K	0.5	J,K	0.4	J	1.0	U	0.4	J	3.00	U	50.0	U,*
Copper	NA	3.4	J	NA		4.7	L	9.2	K,*	2.8	J	2.0	J	6.0	U	6.0	U	2.44	J	7.7	J
Iron	NA	55.0		NA		130		30.9	L	54.7		60.4	K,*	20.0	U	20.0	U	50.0	U	100	U
Lead	5	0.6	J	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	3.0	U	7.5	J,*
Magnesium	NA	15,300		NA		16,900		16,100		16,300		15,700		16,300		15,800		16,400		17,000	
Manganese	NA	34.3	*	NA		10.2		9.4	*	10.4	*	11.2	K	8.4		8.4		8.52	L	8.3	J
Mercury	2	0.5	U	0.5	U,L	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U,L	0.5	U,L	0.5	U	0.5	U
Nickel	57	10.9		7.7		6.9	J	11.6	K,*	10.4	K	11.1	K	7.4		7.9		7.5	K	7.8	J
Potassium	NA	3,100	J, K	NA		3,160	J,K*	3,530	K,*	4,110	K	5,970	K	2,460		2,370		2,300		2,630	J
Selenium	NA	4.0	U	NA		4.0	U	4	U	4	U	4.0	U	4	U	4	U	4.0	U	4	U
Silver	0.1	1.7	U	2.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	5.00	U	10.0	U
Sodium	NA	71,200	K	NA		58,500	L	55,100		56,400	L	65,600		58,600		58,000		60,600		66,600	L
Thallium	0.5	2.0	U	2.0	U	2.0	U	2.0	U	0.5	J	1.0	U	1.0	U	1.0	U	2.0	U	1.0	U
Vanadium	NA	17.0	U	NA		20.0	U,L	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	5.00	U	0.7	J,K
Zinc	NA	34.6	J	NA		16.5	J,L	19.6	J,K	40.9		31.9		18.0	J,K	20.5	J,K	19.3	J	47.1	J
Hexavalent Chromium	2.0	**13**	L	**4.4**	J,L	**11.1**		**8.5**	**J,L**	**10.8**	**L**	**20.8**	**J,L**	**5.7**	**J,L**	**6.5**	**J,L**	**12.8**		**13.8**	**J,***
Cyanide	4	**7**	J	**4**	J	**8**	J	**8**	**J**	4	J	**8**		**5**	J	**6**		**13**		3	J*
Volatile Organic Compounds											**Result (µg/L)**										
1,1,1-Trichloroethane	117	1.0	UJ	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	700	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Benzene	1	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	6	1.0	UJ	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	30	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
m- and p-Xylenes	59	2.0	UJ	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
o-Xylene	59	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	100	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	3	1.0	UJ	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl Chloride	0.2	1.0	UJ	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U,J

TABLE A-26
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2006 SAMPLING EVENTS FOR EW2

Sample Number:	Groundwater	EW2		EW2		EW2		EW2		EW2		EW2		EW2		EW2	
Sampling Date:	**Cleanup Goal**	11/21/02		05/28/03		11/18/03		05/20/04		11/30/04		06/07/05		09/12/05		03/22/06		09/20/06	
Groundwater Elevation:[1]	NA	--		--		--		--		--		--		--		--		--	
Well Bottom Elevation:[1]	NA	539.50		539.50		539.50		539.50		539.50		539.50		539.50		539.50		539.50	
Portion of Glacial Unit:	NA	NA[2]		NA[2]		NA[2]		NA[2]		NA[2]		NA[2]		NA[2]		NA[2]		NA[3]	
pH (standard units)	NA	--		--		--		7.82		7.52		6.87		6.67		8.64		7.16	
Conductivity (mS/cm)	NA	--		--		--		0.747		0.773		0.686		0.722		0.798		0.603	
Turbidity (NTU)	NA	--		--		--		1.0		0		0		0		0		0	
Inorganic Analytes									**Result (µg/L)**										
Aluminum	50	**66.5**		8.8	J	17.6	J,L	80.0	U	100	U	**100**	U	100	U	100	U	200	U
Antimony	3	4.0	U	4.0	U	4.0	U	4	U	4	U	4.0	U	4	U	4.0	U	4	U
Arsenic	0.2	2.0	U	2.0	U	2.0	U	**0.8**	J	2.0	U	2.0	U	2.0	U	**0.5**	J	**0.6**	J,*
Barium	2,000	48.9		49.4		47.1		49.4		52.8		65.3	K	59.0		65.0		68.2	J
Beryllium	NA	2.8	U	NA		0.1	J,K	1.0	U	1.0	U	1.0	U,L	1.0	U	1.00	U	5.0	U
Cadmium	4	**302**		**311**		**319**		**392**		**298**		**228**		**202**		**187**		**141**	
Calcium	NA	66,000		NA		65,500		61,800		63,400		66,600		63,900		66,200		62,100	
Chromium	7,000	19.8		16.2		19.6		36.7		25.0		24.5		25.7		16.9		17.8	
Cobalt	NA	4.2	U	NA		2.0	U	1.0	J,K	1.0	U	1.0	U	0.4	J	3.00	U	0.20	J,*
Copper	NA	3.7	J	NA		1.8	J,L	10.8	K,*	6.0	U	6.0	U	6.0	U	1.62	J	1.3	J
Iron	NA	62.5		NA		11.0	J	764		18.1	J	21.9	K,*	20.0	U	17.3	J	100	U
Lead	5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	0.7	J	3.0	U	2.0	U *
Magnesium	NA	14,500		NA		15,300		14,500		15,200		15,000		16,000		16,600		15,900	
Manganese	NA	320	*	NA		126		279	*	52.8	*	44.0	K	39.9		28.2		40.3	
Mercury	2	0.5	U	0.5	U,L	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U,L	0.5	U	0.5	U
Nickel	57	19.8		14.4		14.8		20.3	*	16.0	*	15.4	K	12.0		9.52	K	8.1	J
Potassium	NA	3,840	J, K	NA		4,120	K,*	4,870	K,*	5,190	K	6,330	K	3,070		3,050		2,930	
Selenium	NA	4.0	U	NA		4.0	U	4	U	4	U	4.0	U	4	U	4.0	U	4	U
Silver	0.1	1.7	U	2.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	5.00	U	10.0	U
Sodium	NA	69,400	K	NA		56,800	L	52,900		52,100	L	54,300		48,900		59,700		54,400	
Thallium	0.5	2.0	U	2.0	U	2.0	U	2.0	U	0.4	J	1.0	U	1.0	U	2.0	U	1.0	U
Vanadium	NA	17.0	U	NA		10.0	J	10.0	U	10.0	U	10.0	U	10.0	U	5.00	U	0.8	J,K
Zinc	NA	76.5		NA		65.3	L	362		84.5		59.1		53.3	K	52.9	K	56.6	J
Hexavalent Chromium	2.0	**20**	L	**10.9**	J,L	**19.2**		**15.5**	J,L	**16.8**	L	**15.2**	J,L	**17.2**	J,L	**18.0**		**14.5**	J,*
Cyanide	4	**28**	J	**9**		**16**	J	**17**		**19**		**27**		**18**		**22**		**23**	*
Volatile Organic Compounds									**Result (µg/L)**										
1,1,1-Trichloroethane	117	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	700	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Benzene	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	6	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	0.5	J	0.59	J
Ethylbenzene	30	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
m- and p-Xylenes	59	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
o-Xylene	59	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	100	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	3	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl Chloride	0.2	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U,J

TABLE A-27
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2006 SAMPLING EVENTS FOR EW3

Sample Number:	Groundwater	EW3		EW3		EW3		EW3-D		EW3		EW3		EW3-D		EW3		EW3		EW3-D		EW3		EW3-D	
Sampling Date:	Cleanup Goal	11/21/02		05/28/03		11/18/03		11/18/03		05/20/04		11/30/04		11/30/04		06/07/05		06/07/05		09/12/05		03/22/06		03/22/06		09/20/06		09/20/06	
Groundwater Elevation:[1]	NA	--		--		--		--		--		--		--		--		--		--		--		--		--		--	
Well Bottom Elevation:[1]	NA	536.60		536.60		536.60		536.60		536.60		536.60		536.60		536.60		536.60		536.60		536.60		536.60		536.60		536.60	
Portion of Glacial Unit:	NA	NA[2]		NA[2]		NA[2]		NA[2]		NA[2]		NA[2]		NA[2]		NA[2]		NA[2]		NA[2]		NA[3]		NA[3]		NA[3]		NA[4]	
pH (standard units)	NA	--		--		--		--		7.23		7.61		7.61		7.17		7.17		6.20		8.83		8.83		7.29		7.29	
Conductivity (mS/cm)	NA	--		--		--		--		0.728		0.778		0.778		0.727		0.727		0.790		0.761		0.761		0.569		0.569	
Turbidity (NTU)	NA	--		--		--		--		0.0		0		0		0		0		0		0		0		0		0	
Inorganic Analytes														Result (µg/L)															
Aluminum	50	**58.3**		NS		10.7	J,L	40.0	U,L	80.0	U	100	U	100	U	100	U	**100**	U	100	U	100	U	100	U	200	U	200	U
Antimony	3	4.0	U	NS		4.0	U	4.0	U	4	U	4	U	8	U	4	U	4.0	U	1	J	4.0	U	4.0	U	4	U	4	U
Arsenic	0.2	1.7	J	NS		2.0	U	2.0	U	2.0	U	**0.5**	J	**0.9**	J	2.0	U	2.0	U	2.0	U	1.3	J	**0.8**	J	**0.9**	J,*	**1.3**	J,*
Barium	2,000	63.9		NS		53.4		51.6		54.2		58.9		55.9		67.0	K	68.0	K	59.2		68.1		65.7	J	67.1	J	69.5	J
Beryllium	NA	2.8	U	NS		0.1	J,K	0.1	J,K	1.0	U	1.0	U	1.0	U	1.0	U,L	1.0	U,L	1.0	U	1.00	U	1.00	U	5.0	U	5.0	U
Cadmium	4	**516**		NS		**355**		**339**		**298**		**275**		**271**		**294**		**292**		**268**		**271**		**227**		**132**		**149**	
Calcium	NA	68,200		NS		64,600		65,100		59,500		64,000		63,100		69,300		69,200		66,300		61,100		61,100		59,800		59,900	
Chromium	7,000	58.0		NS		13.7		8.4	K	16.7		10.6		11.3		18.3		17.4		15.7		26.6		13.8		12.9		27.3	
Cobalt	NA	4.2	U	NS		0.7	J,K	2.0	U	0.7	J,K	0.5	J,K	0.4	J,K	0.5	J	0.6	J	0.4	J	3.00	U	3.00	U	0.3	J,K	0.4	I,K,*
Copper	NA	16.2		NS		4.6	L	1.7	J,L	6	U,*	2.1	J	6.0	U	6.0	U	6.0	U	6.0	U	5.50		2.76	J	2.1	J	4.7	J
Iron	NA	3,850		NS		450		124		68.5		121		129		79	K,*	89.4	K,*	83.7	K,*	649		64.8		296		909	
Lead	5	2.0	U	NS		2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	3.1		2.0	U	2.0	U	3.3		3.0	U	1.8	J,*	2.0	U,*
Magnesium	NA	15,800		NS		15,300		15,100		15,600		15,700		15,100		16,100		16,400		15,700		16,200		15,900		15,600		15,500	
Manganese	NA	109	*	NS		94.1		94.6		80.8	*	76.9	*	74.3		69.2	K	68.9	K	81.0	K	65.9		66.8		37.1	J	37.1	
Mercury	2	0.5	U	NS		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U,L	0.5	U	0.5	U	0.5	U	0.5	U
Nickel	57	50.4		NS		38.4		37.5		36.9	*	32.0	*	32.3		34.4	K	33.8	K	30.4	K	23.0	K	22.2	K	14.6	J	15.5	J
Potassium	NA	4,000	J, K	NS		4,120	K,*	4,100	K,*	4,900	K,*	5,050	K	4,520	K	6,770	K	7,010	K	3,080	K	3,400		3,340		3,190	J	3,240	J
Selenium	NA	4.0	U	NS		4.0	U	4.0	U	4	U	4	U	4	U	4	U	4.0	U	4	U	4.0	U	4.0	U	4	U	4	U
Silver	0.1	1.7	U	NS		4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	5.00	U	5.00	U	10.0	U	10.0	U
Sodium	NA	66,500	K	NS		60,000	L	60,300	L	54,600		51,300	L	50,500	L	57,100		56,900		58,800		58,300		58,400		48,000		48,500	
Thallium	0.5	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.3	J	1.0	U	0.5	J	1.0	U	1.0	U	2.0	U	2.0	U	1.0	U	1.0	U
Vanadium	NA	17.0	U	NS		6.6	J	20.0	U,L	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	5.00	U	5.00	U	0.9	J,K	1.5	J,K
Zinc	NA	460		NS		206		185		186		181		176		165		161		172.0		171		113		95.3		124	
Hexavalent Chromium	2.0	10	U	NS		**2.9**	J	**2.9**	J	**4.2**	J,L	**4.2**	L	1.0	U,L	**5.2**	J,L	**3.9**	J,L	10.0	U,J,L	**5.25**		**6.20**		10.0	U,J,L,	10.0	U,J,L,*
Cyanide	4	**363**	J	NS		**9**	J	**7**	J	**7**	J	**8**		**6**		**14**		**13**		**11**		**27**		**20**		**22**	*	**37**	J,*
Volatile Organic Compounds														Result (µg/L)															
1,1,1-Trichloroethane	117	1.0	U	NS		1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	700	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.4	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Benzene	1	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	6	1.0	U	NS		1.0	U,J	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	30	4.6		NS		1.0	U	1.0	U	0.32	J	1.3		1.3		0.7	J	0.7	J	1.8		1.3		1.3		0.83	J	0.85	J
m- and p-Xylenes	59	2.0	U	NS		2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	0.8	J	0.9	J	2.0	U	2.0	U
o-Xylene	59	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	0.3	J	0.3	J	1.0	U	1.0	U
Toluene	700	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	3	1.1		NS		1.0	U	1.0	U	1.1	J	0.5	J	0.5	J	0.5	J	0.5	J	0.6	J	0.4	J	0.4	J	1.0	U	1.0	U
Vinyl Chloride	0.2	1.0	U	NS		1.0	U,J	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	J	1.0	U,J	1.0	U,J	1.0	U,J

TABLE A-28
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2006 SAMPLING EVENTS FOR EW4

Sample Number:	Groundwater	EW4		EW4-D		EW4		EW4-D		EW4		EW4		EW4		EW4		EW4		EW4		EW4	
Sampling Date:	Cleanup Goal	11/21/02		11/21/02		05/28/03		05/28/03		11/18/03		05/20/04		11/30/04		06/07/05		09/12/05		03/22/06		09/20/06	
Groundwater Elevation:[1]	NA	--		--		--		--		--		--		--		--		--		--		--	
Well Bottom Elevation:[1]	NA	533.50		533.50		533.50		533.50		533.50		533.50		533.50		533.50		533.50		533.50		533.50	
Portion of Glacial Unit:	NA	NA[2]		NA[2]		NA[2]		NA[2]		NA[2]		NA[2]		NA[2]		NA[2]		NA[2]		NA[2]		NA[3]	
pH (standard units)	NA	--		--		--		--		--		7.56		7.67		7.09		7.47		8.66		7.37	
Conductivity (mS/cm)	NA	--		--		--		--		--		0.748		0.779		0.747		0.726		0.844		0.618	
Turbidity (NTU)	NA	--		--		--		--		--		0.0		0		0		0		0		0	
Inorganic Analytes												**Result (µg/L)**												
Aluminum	50	47.8		49.0		12.9	J	24.3	U	40.0	U,L	80.0	U	29.6	J	**100**	U	100	J	34.2	J	200	U
Antimony	3	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4	U	4	U	4.0	U	4	U	4.0	U	4	U
Arsenic	0.2	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	**0.5**	J	**0.7**	J	2.0	U	**0.5**	J	**0.6**	J	**0.5**	J,*
Barium	2,000	47.1		47.1		42.9		42.1		43.3		42.4		44.1		52.9	K	42.9		53.8		52.0	J,*
Beryllium	NA	2.8	U	2.8	U	NA		NA		0.5	U	1.0	U	1.0	U	1.0	U,L	1.0	U	1.00	U	5.0	J
Cadmium	4	**349**		**358**		**482**		**398**		**316**		**294**		**308**		**372**		**337.0**		**448**		**339**	
Calcium	NA	66,700		66,500		NA		NA		65,100		61,100		64,600		68,700		63,400		64,800		59,400	
Chromium	7,000	18.6		19.0		41.3		20.8		23.0		36.4		36.4		22.6		31.0		22.3		18.7	
Cobalt	NA	4.2	U	4.2	U	NA		NA		2.0	U	0.5	J,K	0.3	J,K	1.0	U	0.5	J	3.00	U	0.6	J,*
Copper	NA	4.4	U	1.6	J	NA		NA		1.3	J,L	10.5	K,*	11.5		6.0	U	6.0	U	2.63	J	1.3	J
Iron	NA	15.4	J	63.2		NA		NA		22.4	J	117		151		14.9	J,K,*	10.3	J	50.0	U	100	U
Lead	5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	0.5	J	2.0	U	3.0	U	2.0	U,*
Magnesium	NA	16,900		16,600		NA		NA		16,900		16,000		16,100		15,700		15,600		16,100		13,900	
Manganese	NA	54.4	*	111	*	NA		NA		51.0		50.8	*	46.7	*	102	K	76.7		89.9		94.8	
Mercury	2	0.5	U	0.5	U	0.5	U	0.5	U,L	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U,L	0.5	U	0.5	U
Nickel	57	33.9		35.8		42.4		40.7		29.8		32.3	*	29.2	*	43.1		35.4		42.6		38.9	J
Potassium	NA	3,320	J, K	3,280	J, K	NA		NA		3,110	J,K*	3,540	K,*	4,500	K	6,610	K	2,790		3,420		3,330	J
Selenium	NA	4.0	U	4.0	U	NA		NA		4.0	U	4	U	4	U	4.0	U	4	U	4.0	U	4	U
Silver	0.1	1.7	U	1.7	U	2.0	U	2.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	5.00	U	10.0	U
Sodium	NA	79,800	K	79,400	K	NA		NA		55,900	L	46,700		49,500	L	62,100		50,100		72,700		64,700	
Thallium	0.5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	1.0	U	1.0	U	2.0	U	2.0	U	0.4	J
Vanadium	NA	17.0	U	17.0	U	NA		NA		5.6	J	10.0	U	10.0	U	10.0	U	10.0	U	5.00	U	0.90	J,K
Zinc	NA	130		161		NA		NA		105	L	121	K	132	K	180		151		218	K	220	
Hexavalent Chromium	2.0	**20**	L	**20**	L	**11.8**	J,L	**10.6**	J,L	**20.0**		**11.0**	**J,L**	**37.9**	**L**	**13.4**	**J,L**	**20.1**	**J,L**	**21.0**		**14.6**	**J,***
Cyanide	4	**12**	J	**13**	J	**7**	J	**6**	J	**6**	J	**9**		4	J	**5**		**7**		10	U	**7**	*
Volatile Organic Compounds												**Result (µg/L)**												
1,1,1-Trichloroethane	117	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	700	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Benzene	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	6	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	30	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
m- and p-Xylenes	59	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
o-Xylene	59	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	100	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	3	**4.2**		1.0	U	1.0	J	1.0	J	2.0		1.0	J	1.2		1.2		1.9		1.6		0.74	J
Vinyl Chloride	0.2	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U,J

TABLE A-29
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2006 SAMPLING EVENTS FOR EW5

Sample Number:	Groundwater	EW5		EW5		EW5		EW5		EW5		EW5		EW5		EW5	
Sampling Date	Cleanup Goal	11/21/02		05/28/03		11/18/03		05/20/04		11/30/04		06/07/05		09/12/05		03/22/06		09/20/06	
Groundwater Elevation:[1]	NA	--		--		--		--		--		--		--		--		--	
Well Bottom Elevation:[1]	NA	536.20		536.20		536.20		536.20		536.20		536.20		536.20		536.20		536.20	
Portion of Glacial Unit:	NA	NA[2]		NA[2]		NA[2]		NA[2]		NA[2]		NA[2]		NA[2]		NA[2]		NA[3]	
pH (standard units)	NA	--		--		--		7.54		7.65		7.75		7.78		8.78		7.49	
Conductivity (mS/cm)	NA	--		--		--		0.770		0.853		0.791		0.853		0.752		0.615	
Turbidity (NTU)	NA	--		--		--		1.0		0		0		0		0		0	
Inorganic Analytes									**Result (µg/L)**										
Aluminum	50	48.0		10.6	J	10.6	J,L	80.0	U	100	U	**100**	U	100	U	100	U	200	U
Antimony	3	4.0	U	4.0	U	4.0	U	4	U	4	U	4.0	U	4	U	4.0	U	4	U
Arsenic	0.2	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	**0.6**	J	2.0	U,*
Barium	2,000	48.9		50.6		52.3		51.3		53.5		61.8	K	56.4		48.8		54.2	J,*
Beryllium	NA	2.8	U	NA		0.5	U	1.0	U	1.0	U	1.0	U,L	1.0	U	1.00	U	5.0	U
Cadmium	4	**212**		**242**		**232**		**230**		**301**		**314**		**321**		**248**		**209**	
Calcium	NA	62,500		NA		68,200		64,500		71,300		71,200		69,300		61,400		62,000	
Chromium	7,000	18.1		19.8		22.0		28.9		26.5		28.2		27.3		24.9		20.1	
Cobalt	NA	4.2	U	NA		2.0	U	2.0	U	0.4	JK	1.3		0.3	J	3.00	U	0.3	J,*
Copper	NA	2.3	J	NA		3.2	L	12.1	K,*	3.2	J	2.4	J	4.5	J	4.14	J	3.1	J
Iron	NA	24.5	J	NA		18.1	J	23.9	J,L	27.4		28.6	K,*	22.0	J	26.6	J	22.3	J
Lead	5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	3.0	U	2.0	U,*
Magnesium	NA	14,100		NA		16,000		15,300		16,500		15,600		16,200		14,600		15,000	
Manganese	NA	66.4	*	NA		43.4		43.8	*	41.9	*	59.6	K	92.7	K	25.4		22.9	
Mercury	2	0.5	U	0.5	U,L	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U,L,J	0.5	U	0.5	U
Nickel	57	24.8		26.6		22.6		26.8	*	32.8	*	35.5	K	32.6	K	23.0	K	22.9	J
Potassium	NA	3,320	J, K	NA		3,720	K,*	4,130	K,*	5,340	K	6,720	K	3,090	K	2,700		3,080	J
Selenium	NA	4.0	U	NA		4.0	U	4	U	4	U	4.0	U	4	U	4.0	U	4	U
Silver	0.1	1.7	U	2.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	5.00	U	10.0	U
Sodium	NA	62,300	K	NA		54,900	L	52,600		58,600	L	71,000		67,400		59,300		60,200	L
Thallium	0.5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	1.0	U	1.0	U	2.0	U	1.0	U
Vanadium	NA	17.0	U	NA		6.5	J	10.0	U	10.0	U	10.0	U	10.0	U	1.70	J	0.9	J,K
Zinc	NA	18.7	J	NA		7.3	J,L	25.1	J,K	59.2		39.9		34.5	K	28.8	J	49.0	J
Hexavalent Chromium	2.0	**19**	L	**13.8**	J,L	**21.0**		**17.3**	**J,L**	**18.6**	**L**	**17.2**	**J,L**	**18.4**	**J,L**	**23.8**		**19.4**	**J,***
Cyanide	4	**58**	J	**52**		**50**	J	**12**		**18**		**65**		**56**	**J**	**73**		**53**	**J,***
Volatile Organic Compounds									**Result (µg/L)**										
1,1,1-Trichloroethane	117	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	700	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Benzene	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	6	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	30	1.0	UJ	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
m- and p-Xylenes	59	2.0	UJ	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
o-Xylene	59	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	100	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	3	2.9		2.5		1.1		1.0	U,J	2.0		1.5		1.2		1.1		2.3	
Vinyl Chloride	0.2	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U,J

TABLE A-30
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2006 SAMPLING EVENTS FOR EW6

Sample Number:	Groundwater	EW6		EW6		EW6		EW6		EW6		EW6		EW6		EW6		EW6	
Sampling Date:	**Cleanup Goal**	11/21/02		05/28/03		11/18/03		05/20/04		11/30/04		06/07/05		09/12/05		3/22/2006		09/20/06	
Groundwater Elevation:[1]	NA	--		--		--		--		--		--		--		--		--	
Well Bottom Elevation:[1]	NA	532.40		532.40		532.40		532.40		532.40		532.40		532.40		532.4		532.40	
Portion of Glacial Unit:	NA	NA[2]		NA[2]		NA[2]		NA[2]		NA[2]		NA[2]		NA[2]		NA[2]		NA[2]	
pH (standard units)	NA	--		--		--		7.54		7.72		8.11		6.69		NA		7.3	
Conductivity (mS/cm)	NA	--		--		--		0.757		0.700		0.596		0.649		NA		0.491	
Turbidity (NTU)	NA	--		--		--		1.0		0		0		0		NA		0	
Inorganic Analytes									**Result (µg/L)**										
Aluminum	50	45.3		24.3	U	40.0	U,L	80.0	U	**50.3**	**J**	**100**	U	100	U	NS		200	U
Antimony	3	4.0	U	4.0	U	4.0	U	4	U	4	U	4.0	U	4	U	NS		1	J
Arsenic	0.2	**0.7**	J	**0.9**	J	**0.5**	J	**0.7**	**J**	**0.7**	**J**	2.0	U	0.7	J	NS		**1.0**	**J,***
Barium	2,000	55.6		59.8		53.7		61.1		51.0		58.3	K	48.5		NS		52.3	J
Beryllium	NA	2.8	U	NA		0.1	J,K	1.0	U	1.0	U	1.0	U,L	1.0	U	NS		5.0	U
Cadmium	4	**19.0**		**27.0**		**21.0**		**27.6**		**23.8**		**22.4**		**23.6**		NS		**21.8**	
Calcium	NA	63,400		NA		63,200		67,900		61,600		62,800		59,700		NS		57,500	
Chromium	7,000	12.4		13.8		10.0		20.8		12.7		18.3		16.5		NS		15.1	
Cobalt	NA	4.2	U	NA		2.0	U	2.0	U	0.3	J,K,*	1.0	U	1.0	U	NS		50.0	J,*
Copper	NA	3.1	J	NA		3.1	L	2.9	J,K,*	2.5	J	2.1	J	6.0	U	NS		3.1	J
Iron	NA	110		NA		44.8		30.3	L	27.2		25.2	K,*	17.8	J	NS		17.6	J
Lead	5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	NS		2.0	U,*
Magnesium	NA	14,800		NA		14,800		15,900		15,600		14,200		14,300		NS		14,200	
Manganese	NA	32.2	*	NA		31.4		31.0	*	28.6	*	25.6	K	28.2		NS		25.0	
Mercury	2	0.5	U	0.5	U,L	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U,L	NS		0.5	U
Nickel	57	9.2		7.9	L	8.0	J	13.3	*	12.6	K	13.2	K	10.9		NS		9.2	J
Potassium	NA	3,030	J, K	NA		3,240	K,*	3,560	K,*	5,070	K	6,280	K	2,610		NS		2,700	J
Selenium	NA	4.0	U	NA		4.0	U	4	U	4	U	4.0	U	4	U	NS		4	U
Silver	0.1	1.7	U	2.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	NS		10.0	U
Sodium	NA	49,800	K	NA		43,100	L	46,300		39,100	L	39,300		40,100		NS		38,600	L
Thallium	0.5	4.0	U	2.0	U	2.0	U	2.0	U	2.0	U	1.0	U	1.0	U	NS		1.0	U
Vanadium	NA	17.0	U	NA		5.8	J	10.0	U	10.0	U	10.0	U	10.0	U	NS		0.8	J,K
Zinc	NA	10.7	J	NA		30.0	U	30.0	U	20.6	J	11.6	J	30.0	U	NS		26.5	J
Hexavalent Chromium	2.0	**13**	L	**3.3**	J,L	**5.9**	J	**9.6**	J,L	**6.0**	L	**10.2**	J,L	**4.9**	J,L	NS		**12.9**	J,*
Cyanide	4	**38**	J	**30**		**14**	J	**9**		**5**	**J**	**16**		**12**		NS		**12**	*
Volatile Organic Compounds									**Result (µg/L)**										
1,1,1-Trichloroethane	117	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	NS		1.0	U
1,1-Dichloroethane	700	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NS		1.0	U
1,2-Dichloroethane	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NS		1.0	U
Benzene	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NS		1.0	U
Chloroform	6	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	NS		1.0	U
Ethylbenzene	30	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	NS		1.0	U
m- and p-Xylenes	59	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	NS		2.0	U
o-Xylene	59	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NS		1.0	U
Toluene	100	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NS		1.0	U
Trichloroethene	3	1.0	U	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	NS		0.33	J
Vinyl Chloride	0.2	1.0	U	1.0	U	1.0	U,J	1.0	U	1.0	U	1.0	U	1.0	U	NS		1.0	U,J

Attachment 5

ESTIMATED ANNUAL OPERATION AND MAINTENANCE COST
PEERLESS PLATING SUPERFUND SITE
MUSKEGON, MICHIGAN

Item	Unit Cost	Units	Extended Cost
Labor			
Operator, hr	$54.61	2080	$113,589
Operator Travel	$33.82	260	$8,793
		Subtotal	**$122,382**
Equipment/Disposables			
Computer equipment, month	$350.00	12	$4,200
Pallet Jack, month	$200.00	12	$2,400
Office supplies, month	$100.00	12	$1,200
Telephones/pager, month	$150.00	12	$1,800
Trash disposal, month	$200.00	12	$2,400
Grounds maintenance, month	$250.00	12	$3,000
Facilities maintenance, month	$500.00	12	$6,000
Equipment maintenance, month	$1,200.00	12	$14,400
		Subtotal	**$35,400**
Other Direct Costs			
Sewer Discharge Costs	$24,000.00	12	$288,000.00
Electric, month	$4,000.00	12	$48,000
Gas, month	$350.00	12	$4,200
Water, month	$150.00	12	$1,800
		Subtotal	**$342,000**
		TOTAL	**$499,782**

ATTACHMENT 6

EPA CONDUCTING REVIEW AT PEERLESS PLATING SUPERFUND SITE

MUSKEGON, MICHIGAN

U.S. Environmental Protection Agency Region 5 is conducting a five-year review of the cleanup at the Peerless Plating Superfund site in Muskegon, Mich. The Superfund law requires a review at least every five years at locations where cleanup action has been started and hazardous substances remain managed on-site. These reviews are done to ensure the cleanup continues to protect human health and the environment. A review was previously done in 2002.

This review included an evaluation of background information, cleanup requirements, effectiveness of the cleanup, and any anticipated future actions. Waste discharged from the former facility contaminated underground water supplies (known as ground water) with chemicals such as TCE and PCE, while mud (sediment) in Little Black Creek was found to contain metals such as copper, zinc, chromium and cadmium.

EPA selected several cleanup actions for the site: Demolition and disposal of buildings on the property; installing a system to remove dangerous vapors from the soil; removing contaminated soil; constructing a system to treat and strip chemical contamination from the underground water; and diverting the wastewater discharge system from Little Black Creek to the local treatment plant.

This latest five-year review report should be completed by Sept. 30 and will be announced with another public notice. The report will be available at the Norton Shores Branch Library, 705 Seminole Road, Muskegon, where other site documents can also be read. The public is invited to comment on the latest five-year review. For comments or more information about the site contact:

LINDA MARTIN
Remedial Project Manager
EPA Region 5 (mail code SR-6J)
77 W. Jackson Blvd.
Chicago, IL 60604
(800) 621-8431 Ext. 63854, weekdays 10-5:30
martin.lindab@epa.gov

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STATE OF MICHIGAN
County of Muskegon **ss.**

Gary Ostrom being duly sworn deposes and says that he is the Publisher of the MUSKEGON CHRONICLE, a newspaper printed in Muskegon County and circulated within the Counties of Muskegon, Ottawa, Newaygo, Mason, and Oceana; that the annexed notice was duly printed and published in said MUSKEGON CHRONICLE for One (1) day(s); that is to say, on the 28th day(s) of February 200 7, and the _____ day(s) of _____ 200___, and that said publication was continued during said time without any intermission or omission, and that he has a personal knowledge of the facts above set forth.

Gary Ostrom

Subscribed and sworn to before me this 28th day of February A.D. 200 7.

Penny E Larson

Notary Public, Muskegon County, Mich.

Penny E Larson
Notary Public State of Michigan
Muskegon County
Expires 12/26/07

_____ times, $_____